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New Kraft Pulp Mill Planned for Brunswick, Ga.

Brunswick Pulp & Paper Co., Subsidiary of Mead Corp., Begins Construction Within Several Months of Plant for Production of Bleached and Unbleached Kraft Pulp—Represents Expenditure of $7,000,000 for All Units.

[FROM OUR REGULAR CORRESPONDENT]

BRUNSWICK, Ga., October 1, 1936—An extensive pulp plant for Brunswick was announced today by the Mead Corporation and its officers, of Chillicothe, Ohio, to be known as the Brunswick Pulp and Paper Company. The formal announcement was made by Allen W. Macbeth, comptroller of the Mead Corporation who is to be vice president-treasurer of the new company.

The Brunswick plant, it is understood, when all of the units are completed, will represent an expenditure of approximately $7,000,000.

Mr. Macbeth, representing the directors and officers of the Mead Corporation announced the filing of incorporation papers for the creation of the Brunswick Pulp and Paper Company in Baltimore, Md., yesterday and at the same time issued an authorized statement concerning the proposed establishment of the Brunswick subsidiary of the Mead Corporation.

The plant, to be located adjacent to the city limits near the site of the properties of the Southern Railway docks, will be composed of several units which will be erected over a period of years. The first unit of the industry, consisting of a plant for the production of bleached and unbleached kraft pulps, will probably be placed under construction within the next several months.

Large Tract Acquired

Under the charter of the Brunswick Pulp and Paper Company there has been acquired from the city of Brunswick a tract of 400 acres of marsh land properties, fronting Turtle River near the property of the Southern Railway. Under present conditions the marsh lands to be made suitable for construction purposes must be filled in through dredging processes.

The properties of the Brunswick Pulp and Paper Company extend for a distance of 1,500 feet along the front of Turtle river, accessible to channels of depths of thirty feet and suitable for ocean-going vessels and maritime transportation to all ports of the world. One of the initial steps in the development of the property will be the construction of docking facilities which will be carried out at a cost of $250,000.

City Manager Fernando J. Torras and Malcolm B. McKinnon, chairman of the county commissioners, when questioned today concerning improvement of the properties declared they were not in position at this time to state when actual dredging and filling of the marsh lands will be started, but it is understood that within the next sixty days dredges will be at work on the project.

Only forty acres of the property will be filled for the initial unit of the plant, it was declared, and additional properties will be developed as the Brunswick Pulp and Paper Company expands its holdings and its construction here. The forty acres, it was pointed out, is sufficient to provide for the establishment of the first unit of the industry.

Transportation Facilities

Among other first-step projects in establishment of the plant here will be the construction of highways connecting the properties with other arterial highways of travel to provide ready transportation facilities for the moving of pine from adjoining territories. The proposed road, it was stated, will be accessible to traffic from all directions.

To provide suitable railway accommodations for the plant, it is being contemplated that a spur track or short line will be installed from the right-of-ways of the Southern Railway across the marsh lands to the property. There is, it is understood, a suitable "bed," formerly used by the Southern, which will be adequate for the replacement of tracks to the properties.

Just what will be the expenditure on the first unit of the plant was not announced by officials of the company, but it is understood that two units will follow the inauguration of the industry in Brunswick. It was reliably stated that upon its completion in its entirety the plan will represent an expenditure of more than $7,000,000. which will give Brunswick the largest industry of its kind in the Southern states.

Immediate Plans

According to immediate plans the Brunswick Pulp and Paper Company will be pioneers in the South in the manufacture of high grade papers from Georgia slash pine. Pulp produced at the plant, through the bleaching and unbleached process, will be forwarded to other plants of the Mead Corporation for the manufacture of high class paper. Later, it is understood, the finished product may be turned out here.

(Continued on page 26)

Union Bag Formally Opens Savannah Mill

Ceremony Attended by Georgia State Officials, Representatives of Company and Its Bankers, and Others—President Alexander Calder Predicts Bright for Industry In Savannah—Plant Will Furnish Employment to 2,400 People.

[FROM OUR REGULAR CORRESPONDENT]

SAVANNAH, Ga., October 2, 1936—The Union Bag and Paper Corporation opened its first Southern unit yesterday in a ceremony attended by state officials and numerous representatives of the company and its bankers from New York.

Alexander Calder, president of the company, speaking at the dinner tendered his company and distinguished guests last night by the Industrial Committee and Port Authority of Savannah, painted a bright future for industry in Savannah.

The expansion of the Union Bag plant, he said, would mean by next year when the addition to the plant is completed, a consumption annually of 480,000 tons of wood. Transportation costs by water, rail, and truck for the raw material to the mill and the finished material out of the mill will reach $1,500,000 annually. He gave this as an estimate of the worth of the enlarged plant which will furnish employment to 2,400 persons in Georgia and an annual payroll of $2,000,000, practically equal to the entire payroll of Savannah before Union Bag located here.

He spoke, in part, as follows:

Address by Alexander Calder

"About five years ago I came to the conclusion that the Union Bag and Paper Corporation—without a Southern plant—would make about as much progress on the road to fame and success as Colonel Lindbergh would have made without an aeroplane. In the Savannah mill supplemented by our various factories throughout the country, we have a vehicle that will carry us to our goal about as swiftly as we could hope to travel—considering all the pitfalls and hurdles with which every new business venture must cope. Lindbergh went places with his aeroplane—and we intend to go places with our Savannah project.

"My business experience has taught me that the most successful contracts or business deals are the ones that benefit both parties. When one side gets all of the benefits and the other side gets hurt the deal just doesn't last.

"The largest and best customer we've got on our books has been our customer for twenty years. They have never asked us to sign a contract and we have never asked them to sign one. The prices we name them are subject to change without notice. They never had to ask for a price reduction and they have never complained about a price advance. We carry as much as three months' stock at times to give them good service notwithstanding the fact that we have no written—or even verbal order—for the bags in stock. This kind of a deal is possible only because we have confidence in each other and it is a good deal for both of us. I don't mind telling you that the customer's name is the F. W. Woolworth Company.

"Now what I like about this Savannah project is this: It is a good deal for us and a good deal for Savannah. It is economically sound because of its location, and the fact that this mill has all of the most modern up-to-date improvements. Furthermore, it will not run out of orders because the Union Bag and Paper Corporation has been selling bags to satisfied customers for fifty years, and will continue to do that for at least another fifty years. In fact, I dare say this will be true even after the Savannah mill becomes obsolete. In other words, without an established business to provide orders for that mill our bankers and stockholders would hesitate a long while before putting up seven million dollars—which will be the approximate cost of the plant before it is completed next June. But, with an established business the plant has nothing to do except turn out a good product. And—I'm glad to say we are already doing that.

Magnitude of Venture

"In order to give you a more concrete picture of what this operation means to the city of Savannah and its people let me call your attention to the fact that after our second unit starts operations next June or July, our mill at Savannah will consume 450,000 tons of wood annually. This wood will be delivered by water, rail and truck. The estimated transportation revenue on this wood will be $270,000. Approximately 120,000 tons of pulp and paper and bags will be shipped out of the mill every year. The transportation revenue on this will be close to $1,000,000. About 20,000 tons of salt cake and 6,000 tons of lime will be required—on which the freight will be $78,000. Other revenue of this character will amount to $300,000 a year—making a total of $1,500,000 a year. This gives you some idea of the magnitude of this venture.

"It is particularly gratifying to know that this project will give employment to approximately 2,400 persons right here in your State of Georgia—1,200 persons in the pulp and paper mill and office—300 in the bag factory and about 900 will be employed in the production of wood. This means that the entire payroll resulting directly from this operation will be over $2,000,000 annually—which is practically equal to the entire industrial payroll of this city of Savannah prior to our locating here. That is something for you to think about.

"I wonder how many of you here realize that it took Savannah several centuries to build up an industrial payroll equal to the payroll which our corporation will bring to Savannah within two years' time. And, you citizens of Savannah can thank your bankers, your Industrial Committee, your Mayor and the city government for making this project possible.

"We estimate that this immense payroll will be spent by some 9,000 persons, and most of it will go directly or indirectly to your grocery stores, furnishing stores, drug stores, automobile dealers, filling stations, real estate companies, insurance companies, utility companies, hotels, restaurants, and churches—in fact all branches of commerce and society will share in it.

"In our opinion, there should be annually over $700,000 of this $2,000,000 remaining right here in Savannah as added wealth to this community. Just think of that. And let me assure you that this $2,000,000 which is to be spent in this community will create quite a stir in Savannah's business life. Then you will discover that the banks and investment houses of Savannah will find many new accounts and many new customers seeking their advice and guidance.

Forestry Situation

"Now what effect will this project have on the forestry situation in the state of Georgia? Well, I'll tell you. It

has been estimated that when our second unit is finished we will spend in the neighborhood of $700,000 yearly in the Savannah forest area for wood. We have already purchased and leased thousands of acres of timberland, thereby creating a market value for cut-over and denuded lands which previously had no market value. A new asset of real value is now being established by us in the forest area, and denuded lands that will grow pine trees constitute the greatest asset this area possesses.

"There are about nine million acres of this type of land within our forest land reservoir. Very shortly, purchases and leases on 200,000 acres will have been consummated. This quantity, when compared to the nine million acres available is small, but our purchases of wood should give some hope to other land owners who are now burdened with taxes and other carrying charges.

"The market we create for wood will save Georgia, and northeast Florida as well, the embarrassment which the greater part of Florida has suffered during the past few years. If our good friend, Governor Scholtz, were here, he could tell you that in his state some 8,000,000 acres of wooded lands have reverted to the public domain, the owners being unable to pay taxes on their lands. The reason for this was that there was no way in which to utilize the forest products of these lands, but we shall supply utilization in the Savannah area, and we ourselves shall raise a tree for every tree we cut.

"Furthermore, this will inspire others to raise in this area ten trees for every single tree that would have been raised had this plant not been built in Savannah.

To Perpetuate Conservation Work

"On much of the land we have acquired the CCC have made wise and expensive improvements. We intend to step in where the federal government leaves off, to maintain and perpetuate this work. Perpetuation of this work is necessary, to prevent the dissipation of all the good which has been accomplished up to date by the CCC.

"I hope that this picture of our Savannah project which I have attempted to give you will impress upon each and every one of you the importance of doing your share to make this project a success. It is just as important to you and your children and grandchildren as it is to the Union Bag and Paper Corporation and its stockholders. We have just started. It is in your hands as much as it is in our hands. We are counting on you to do your part and you can count on us to do our part.

"It is impossible, however, for any business to secure additional capital for expansion unless that business is successful and makes profits. You all know that. We intend to be fair to labor and fair to the wood growers, but bear in mind that a successful and profitable operation at the start will guarantee to Savannah a bigger operation and a larger payroll in years to come, as well as a bigger market and higher prices for wood growers, rather than a narrowing market or the loss of a market which would result from an unsuccessful operation.

"So—ladies and gentlemen—I feel that the motto henceforth for Savannah and for us in the Union Bag and Paper Corporation should be—Let's both pull together."

Dr. F. P. Garvan Speaks

Dr. Francis P. Garvan of New York, president of the Chemical Foundation of America, declared the Savannah mill "broke the ice" and as a direct result $40,000,000 in paper mill construction in the Southeast has either been started or is soon to go under way. He mentioned the proposed Brunswick mill, the Champion mill in Texas and the one at St. Jeo, Fla., in the way of proof.

Praising the pioneer spirit of Alexander Calder, president of the company, and other members of his family, Dr. Garvan said "the Calders are the unknown soldiers of American progress." Fired by courage and progress they started out expanding when business was in the doldrums, and found "men of courage in Savannah." As a result Union Bag was the vanguard of the mill expansion that has come to the South.

Dr. Garvan counselled his listeners that after every storm one should pause and ask the question "then what?" Perhaps the country has been on a spree, and got a headache. Eventually we've got to sober up and 'then what'?", he asserted.

He said "sit in the seat of the pine tree," a postlude to a joke on a bouncing Irish horseman in a St. Patrick's Day parade. "You don't know the future of the pine, nor what chemistry can bring to you. But through research we are going to develop the pine to its fullest." Alcohol, textiles and other articles were mentioned as possible extractions.

The noted speaker said his sole interest at present is in the children of the future, who are now in the great American melting pot.

Dr. Herty's Vision

Dr. Garvan's faith in the future of pine must have been even further enhanced by the speaker that followed, Dr. Charles H. Herty. The Chemical Foundation during the past few years has given nearly a half million dollars to aid in the work at the Paper and Pulp Laboratory.

Dr. Herty declared that "during the last two weeks we have caught a vision in our little laboratory on River street of a still greater usefulness for pine to humanity than paper." Facts don't justify any definite announcement but by patient research "we hope to open a new chapter in public life."

The indication that loblolly pine has yielded another of its secrets to the white-haired scientist came as a conclusion to his brief address in which he predicted that within the next decade "The South will be in control of the newsprint industry as it now controls the kraft paper industry. It's just a case of plain economics."

Dr. Herty said the announced tonnage of the new kraft mills this year is doubled the one half million tons of kraft pulp imported last year. He said increased uses for this type of paper will take up the increase. The renowned chemist dwelt also on the increasing possibilities of rayon from pine, stating that five weeks ago one of the largest mills ran some sulphite pulp quite successfully. The pulp was made at the Savannah laboratory.

Likening the coming of the Union Bag Company as the start of a "snow ball," Dr. Herty said other industries will come as a result. The hope that the opposition of Northern bankers to an exodus of newsprint mills to the South would be broken was also voiced by Dr. Herty.

Road Requested for Proposed Pulp Mill

RALEIGH, N. C., October 5, 1936.—A request for a one-mile stretch of concrete road to serve a huge wood pulp plant projected for Bertie County has been presented to State Highway Chairman Capus M. Waynick by Congressman John H. Kerr of Warrenton and J. H. Matthews of Windsor.

Mr. Waynick indicated that, if the plant should be definitely assured, the commission would consider favorably the paving of a county road to connect with U. S. Route 17, affording a reliable route for the mill's trucks. The project would cost $30,000 to $50,000, Mr. Waynick said.

Congressman Kerr and Mr. Matthews told the highway chairman that a large pulp manufacturing concern is considering the investment of probably $2,000,000 on a mill on the Cashie River.

Paper Safety Section Meets at Atlantic City

Hollingsworth & Whitney Co., Waterville, Me.; Kimberly-Clark Corp., Neenah, Wis., and International Paper Co., North Tonawanda, N. Y. Win Safety Contest in Groups A, B and C—Papers on Safety Problems Presented.

ATLANTIC CITY, N. J., October 7, 1936.—The "G-Men" of the accident prevention world, several thousand members of the National Safety Council, gathered here from all parts of the United States and several foreign countries October 5 to 9 for the twenty-fifth National Safety Congress and Exposition. Nearly four hundred speakers emphasized accident prevention in industrial plants, on the street, in the home, in schools, in the air and at sea. It was estimated that approximately 12,000 delegates and visitors were present at the convention.

The 150 different sessions were held at the headquarters hotel and the Atlantic City auditorium, the largest building of its kind in the world. The Exposition, a huge display of equipment for safeguarding dangerous operations of all kinds, was held in the ball room of the auditorium.

Due to the nation-wide interest in the National Safety Council's five-year campaign to cut motor vehicle deaths 35 per cent by the end of 1940 and save at least 38,000 lives, much attention was focused on the program of the Street and Highway Traffic Section.

Paper and Pulp Section Program

A specially interesting series of programs was carried out by the Paper and Pulp Section, under the general chairmanship of E. E. Grant of the Crystal Tissue Company, Middletown, Ohio. The program was arranged under the direction of the secretary and chairman of the program committee, George J. Adams of the International Paper Company, Glens Falls, N. Y.

The sessions began Monday afternoon and ended on Thursday morning. During the course of the program the following papers and reports were delivered:

"Past Year's Activities and Progress of the Section," by general chairman E. E. Grant.

"Report of Accident Experience Exchange," by A. E. Winslow, manager of personnel, Hollingsworth & Whitney Company, Waterville, Me.

"Ground Wood Hazards and Their Elimination," by T. W. Small, superintendent Abenaquis Mills, Hollingsworth & Whitney Company, Madison, Me.

"Selection and Training of Employees in the Paper and Pulp Industry," by H. G. Noyes, manager of industrial relations, Oxford Paper Company, Rumford, Me.

"Hazards of the Boxboard Industry," by William S. Elliott, general manager, Inland Container Corporation, Middletown, Ohio.

"Paper Mill Safety from the Supervisor's Standpoint," by George E. Fuller, ground wood superintendent, Finch-Pruyn & Co., Glens Falls, N. Y.

"Paper Mill Safety from the Workman's Standpoint," by John L. Sullivan, paper machine tender, International Paper Company, Fort Edward, N. Y.

Panel Discussion on Paper Mill Safety

The program for the Paper and Pulp Section was concluded with a panel discussion on paper mill safety. The discussion leader was E. E. Grant, vice-president of the Crystal Tissue Company, Middletown, Ohio. The panel discussed, in addition to others which were brought out, the following leading questions:

1. What are your outstanding mill hazards and what has been done to eliminate them?
2. What are your initial steps in attempting to correct unsafe practices?
3. What methods do you employ to maintain safety among the personnel?
4. What disciplinary measures are enforced in your mill? By whom? How?
5. If you were chief executive of a mill and wanted to undertake just one safety activity, what would you select? Why?

130 Mills Entered in Contest

Winners in the Paper Industry Annual Safety Contest for 1935-1936 were announced on Wednesday. Fourteen of 130 mills entered had perfect no-accident records. First place plaques for winners in Divisions I and II, together with certificates for second and third places, were presented by C. B. Auel of Pittsburgh, a past president of the National Safety Council.

One hundred and thirty paper mill companies and units participated in the contest, which was open to all members of the National Safety Council having an average monthly exposure of 6,000 man-hours or more. The first division was limited to pulp and paper mills; the second to paper and board re-manufacturing units. The contest ran from July 1, 1935 to June 30, 1936.

Awards were made for the lowest frequency rates (number of disabling injuries per one million hours worked). Where two or more contestants tied for first place in any group without a disabling injury, this perfect record resulted in equal rankings and awards.

A "disabling injury" was defined by contest rules as any injury arising out of and in the course of employment, resulting in death, permanent total disability, permanent partial disability or temporary disability. Under the rules "injuries" were classed as those in which the victim was unable to return to work at the beginning of the next day following the mishap.

Nearly 46,000 employees worked 100,491,110 man-hours in the 130 mills entered. There were in all 1,517 disabling injuries with an average frequency rate of 15.096. Seventy-one mills maintained frequency rates below the average.

Winners in the Contest

The first, second and third places in the various divisions and groups were as follows:

Division I, Group A

100,001 average monthly man-hour exposure and over:

1. Hollingsworth & Whitney Company, Algonquin and Taconnet Mills, Waterville, Me.
2. Bryant Paper Company, Kalamazoo, Mich.
3. Anglo-Newfoundland Development Company, Ltd., Grand Falls, Newfoundland.

Group B

60,001 to 100,000 average monthly man-hour exposure:

1. Kimberly-Clark Corporation, Badger-Globe Mill, Neenah, Wis.
2. St. Croix Paper Company, Woodland, Maine.
3. Fraser Paper Limited, Madawaska, Maine.

Group C

30,001 to 60,000 average monthly man-hour exposure:

1. International Paper Company, Little Island, N. Tonawanda, N. Y.
2. Continental Paper and Bag Corporation, York Haven, Pa.
3. Finch Pruyn & Company, Glens Falls, N. Y.

Group D

6,000 to 30,000 average monthly man-hour exposure:

1. The Harriman Company, Harriman, Tenn.
1. International Paper Company, Webster Mill, Orono, Me.
1. Bird & Son, Inc., Phillipsdale, R. I.
1. Hollingsworth & Whitney Company, Aroostook & Cobbossee Mills, Gardiner, Me.
1. United States Gypsum Company, North Kansas City, Mo.
1. Central Fibre Products Company, Inc., Vincennes, Ind.
1. Spaulding Fibre Company, Inc., Milton, N. H.
1. Hollingsworth & Whitney Company, Abenaquis Mill, Madison, Me.

Division II

1. Union Bag and Paper Corporation, Grocers Mill, Hudson Falls, N. Y.
1. Kimberly-Clark Corporation, Atlas Mill, Appleton, Wis.
1. Texas Corrugated Box Company, Dallas, Texas.

Chemicals by Glyco

The latest edition of "Chemicals by Glyco," published by the Glyco Products Company, 148 Lafayette street, New York, contains a number of interesting additions. In particular, may be mentioned the special formulae section where suggested formulae are given of interest to many different industries.

An innovation which should prove of great value to chemists and technicians is the policy of supplying special assortments of chemicals according to classification. For instance, Assortment A consists of the various emulsifying agents manufactured by the Glyco Products Company, Inc. Thus, if a chemist is working on an emulsion problem, he will have readily accessible a series of emulsifying agents which he can easily try for his particular problem.

Copies of the catalogue can be obtained gratis by any chemist or technician on application to the Glyco Products Company, Inc.

Mead Corp. Consider Unpaid Dividends

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, October 5, 1936—The Mead Corporation announces that a special meeting of stockholders has been called for October 30 to consider a proposal to clear up a major portion of unpaid back dividends on the $6 cumulative preferred stock, Series A.

The meeting will be held in this city, where the Corporation's headquarters were located, until removal to Chillicothe, Ohio.

The plan proposes an amendment to the company's articles of incorporation permitting directors to issue one share of common stock for each share of preferred in lieu of 10 quarterly cash dividend payments. The company is now in arrears 13 quarterly installments, amounting to $19.50.

The payments would be made in present authorized but unissued common stock. Stockholders of record October 9 will be entitled to vote.

Joins Paper Converting Machine Co.

The Paper Converting Machine Company, Green Bay, Wis., announces that during the month of September the capital stock of the company was considerably increased to permit Lester G. Wood, formerly vice-president and assistant general manager of Northern Paper Mills, to purchase a substantial interest in the company. Mr. Wood becomes vice-president and treasurer, in charge of sales. Since 1921 Mr. Wood was associated with the Northern Paper Mills and prior to that time was in the wholesale paper business associated with Leslie-Donahower Paper Company of St. Paul, Minn.

The association of Mr. Wood with the company is in line with the general idea of expansion and growth. It

LESTER G. WOOD

will enable a closer contact with customers and friends in the paper manufacturing and converting industry.

Mr. Wood's entry into the company will enable Peter J. Christman, one of the founders of the company, and associated with it continuously since its organization, to devote his entire time to design and production. Mr. Christman has designed and developed many of the outstanding paper converting machines now in use in the paper mills and converting plants in all parts of the United States and Canada.

Byron L. Walter remains president and Fred W. Christman will continue as secretary of the company in charge of credits, accounts and general office supervision.

Plans for Vancouver Kraft Co.

VANCOUVER, B. C., October 3, 1936.—Announcement is expected shortly from F. W. Leadbetter, Portland, Ore., chief executive officer of the reorganized company which has taken over the pulp plant and sawmill of Vancouver Kraft Company at Port Mellon, B. C., regarding the management of the plant.

Nels Peran, supervising engineer, is taking charge of the reconditioning of the pulp plant and sawmill of the company, completing installations which were begun before the operations ceased at the collapse of the kraft pulp market in 1929. The company will begin operations early in 1937, it is expected, and will probably ship its products to the Leadbetter mills in the Pacific Northwest.

Widener Library Shows Harvard Paper Exhibit

Prepared by William Bond Wainwright, Interesting and Instructive Display of Paper Is Part of University's Tercentenary Celebration—Volume of Paper Sales In Boston Well Sustained — Fine Paper Demand Active.

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., October 5, 1936—The Harvard Paper Exhibit, shown at Widener Library as part of the Tercentenary Celebration and at a recent meeting of the New England Paper Merchants Association, was prepared by William Bond Wheelwright, who also arranged the "House of Paper" at the Chicago Fair. The exhibit includes the following:

Panel 1 (a) United States Paper Consumption by Kinds, 1899-1930, reproduced by permission from "The Pulp and Paper Industry," by C. W. Boyce.

(b) A Definition of "Paper," from "Printing Papers," by W. B. Wheelwright.

2 (a) The Invention of Paper, according to R. H. Clapperton, in "Paper, An Historic Account."

(b) A Brief Chronology of Paper, from "Printing Papers."

3 (a) The Durability of Modern Paper, Abstract from Report of Special Committee, Library Association of London.

(b) Rag Pulp described.

(c) Waste Paper Pulp described.

4 Samples of Wood Pulps: (a) Bleached Spruce Sulphite (b) Poplar Soda Pulp (c) Ground Wood Pulp.

5 Definitions of Wood Pulps: (a) Sulphite (b) Soda Pulp (c) Ground Wood.

6 Materials and Equipment Used in Manufacture of Typical Wood Pulps: (a diagrammatic Chart reproduced from "The Pulp and Paper Industry.")

7 Light Reflectance: Diagrams and legends quoted from "The Paper Industry," showing the bearing on legibility and optical comfort.

8 Demonstration of Light Reflectance and Glare of typical book papers with laboratory measurements of these properties prepared under the direction of C. C. Heritage, Technical Director, Oxford Paper Company.

9 Main Factors in Legibility of Type:

(a) Measurements of Reflectance and Glare of typical finishes of book papers, tabulated.

(b) Type set solid and leaded of same size, on newsprint and book paper.

(c) Example of paper demonstrating opacity.

(d) Transparent paper.

(e) Example from "Boston Transcript" illustrating and contrasting their new Ionic typeface with their former 7 point Roman.

10 Paper making by Hand and by Machine, illustrated by pictures from "Printing Papers."

Views of Government Printing Office Testing Laboratories, Ltd.

11 Printed Samples of Bond and Ledger Papers, made to Government Specifications. (a) 100 per cent rag content, bond. 100 per cent rag content, ledger.

12 Printed Samples of Ledger Papers made to Government Specifications.

(a) 75 per cent rag content; (b) 50 per cent rag content.

13 Bond Papers made by American Writing Paper Company.

(a) 100 per cent; (b) 75 per cent; (c) 50 per cent; (d) 25 per cent rag content. (e) 100 per cent sulphite bond, made to Government Specifications.

14 U. S. Government Printing Office Publications.

(a) Halftone on Enamel Book Paper; (2) Letterpress printing M. F. Book Paper made of Soda and Sulphite (bleached); (c) Halftone on Enamel Book Paper; (d) Offset Printing on Offset Paper; (e) Halftone Printing on Enamel Book Paper.

15 U. S. Government Printing Office Publications.

(a) "75th Anniversary of G. P. O." 100 per cent rag, wove antique book paper; 100 per cent rag hand made cover paper; coated paper insert with halftone; Plate paper inserts (2) steel engravings.

(b) "Remarks Concerning the Public Printer." 75 per cent rag laid, book paper.

(c) "Glacier National Park," Offset printing on offset book paper, Cover paper 50 per cent rag, laid.

(d) "52nd Annual Report, Bureau of American Anthology," Letterpress printing on 50 per cent rag book paper, wove.

16 Three Standard Finishes of Coated Book Paper:

(a) "Achievement," Warren's Cameo, ivory, dull coated book paper.

(b) "Lake Minnewaska," Warren's Cumberland dull coated.

(c) "Applied Photography," Warren's Lustro Gloss.

17 Commercial Printing:

(a) Offset printing on Strathmore Beau Brilliant; (b) "Announcement" Gravure printing on Strathmore Saxonet; (c) Folder, "The Art of Photogravure," by photogravure on Strathmore Saxonet.

(d) "Hotel Pierre," by photogravure on Strathmore Courier.

(e) "Gravure by Orgain" on Strathmore Saxonet.

18 Paper by Worthy Paper Company Association.

(a) 100 per cent rag Worthy Charter; (b) Letterhead by Meriden Gravure Co. on 50 per cent rag Sterling wove, ivory, Gelatine process.

19 Hand Made and Mold Made Papers:

(a) Letter paper by Dard Hunter, (watermarked with portrait) 100 per cent rag.

(b) Announcement, "Papermaking in Siam," paper by Dard Hunter 100 per cent rag.

(c) "A Proclamation," Mold Made, Cragbourn 4 side deckle, Hurlbut Paper Company.

(d) Mold made paper by Howard Smith Paper Mills, relief watermark.

20 Miscellaneous High Grade Printing for Commerce:

(a) "Jaythorpe," Cragbourn 4 side deckle edge, mold made; (b) "Silver Anniversary," Interdeckle Greeting paper by Hurlbut Paper Co.;

(c) "Wine Card," Offset in four colors on Strathmore Highway Cover.

(d) "Lee, Massachusetts," Letterpress on Cragbourn 4 side deckle edge.

(e) "Holiday Greetings." Cragbourn 4 side deckle edge.

(f) "A Prayer," Interdeckle Greetings, (g) "Announcement," Offset printing on Strathmore laid, Highway book paper. (h) "Makanna Inc." on Cragbourn.

21 Historic Specimens:

(a) "The Constitutional Telegraph" of November 26, 1800.

(b) "Invitation" Tercentenary Celebration, Harvard University, designed by Bruce Rogers, printed by Harvard University Press on British hand made.

22 Side Elevation of Modern Fourdrinier Paper Machine, Courtesy of Hammermill Paper Company.

Relative Bulk of Book Paper.

Five Case-bound Volumes by Boston Bookbinding Company, Cambridge, Mass.

Specifications: 1,000 pages substance weight 50 lbs.

1. Supercalendered Paper	Bulk	1⅝	Inches
2. English Finish	"	1¾	"
3. Text Finish	"	2⅜	"
4. Antique Finish	"	2⅞	"
5. Featherweight	"	3⅝	"

Examples of Paper Failures

1. Spotted 100 per cent rag paper, possible cause soluble iron in water.

2. Featherweight book paper, volume published 1927 in bad condition due to porosity and lack of durability.

3. End leaf paper, containing ground wood, discolored and brittle through oxidization on non-cellulose content of the pulp used.

Demand for Paper Brisk

Reports in the Boston wholesale paper trade indicate a favorable volume of sales during the last week. In fine papers it is estimated that the demand was fairly evenly divided among bonds, ledgers, book papers, advertising papers, etc. It is understood that mills making rag content bond papers have withdrawn prices, that Boston houses received telegrams to that effect Friday.

In some quarters of the fine paper division, it was reported that September was exceptionally good. At the New England office of a large manufacturing concern, it was stated that September showed some improvement. Business in box coverings was very good. In some instances, at least, wrapping paper sold remarkably well. There was a little difficulty in getting orders filled by the mills, as manufacturers had so many orders on hand. The demand for box boards was a little improved.

No price changes were reported in the paper stock market for the week, but it is stated that is uncertain what the coming week will bring forth. Mixed papers, old newspapers and other grades of old papers held firm. Under bagging, manila rope was rather active, so much so that it would not be surprising if prices advanced a little. Bagging was in demand, but dealers did not care to accept prices which were offered, so that there was little or no business.

The foreign market on bagging keeps above the domestic market, but it is stated that the devaluation of the franc would have a tendency to cause an easing on prices. Shippers abroad take into account that the lower quotations help the market here and in a good many cases it is felt that the foreign packers may advance their quotations a little. There is no question but that foreign sellers are very firm on all sorts of paper making materials.

New domestic rags held firm, with mills taking offerings fairly freely. New shirt cuttings were in demand, moving at strong prices. The trade has been expecting that on account of the new agreement in the rate of Exchange more reasonable prices would be possible in foreign rags and in that event more business is hoped for.

News of the Industry

An informal luncheon, good will meeting of a group of representatives of wrapping paper houses was held Thursday at the Boston Chamber of Commerce on invitation of John C. Hurd, executive secretary of the New England Paper Merchants Association. Those present, about twelve in number, from both large and small houses, compared notes on trade conditions. The general tone was distinctly optimistic.

The first fall luncheon meeting of the Fine Paper Division of the New England Paper Merchants Association is to be held Tuesday at the Boston Chamber of Commerce.

The Storrs & Bement Company is opening an office in Worcester, Mass. in charge of Mr. Winter, formerly of the Butler-Dearden Paper Service, Inc., of that city. Roger K. Vaughan, who formerly represented Storrs & Bement very successfully in Worcester, will devote his time to Greater Boston.

A sales meeting at which S. L. Hallett, sales manager for the Corroflex Division of the Sherman Paper Products Corporation, was guest speaker, was held Saturday at the office of Carter, Rice & Co., Corp. Mr. Hallett discussed at some length the sales potentialties of that product of his company, demonstrating effectively the various methods of wrapping items of merchandise in Corroflex. Two new sheets of Corroflex were presented—Allwite, a sheet designed for retail seasonal and gift packages, and the 100-pound Corroflex, designed to give maximum protection in heavier bundling problems.

Harry J. Dowd, paper merchant, with offices in Cambridge, Mass., and residing in Weymouth, Mass., is a Democratic candidate for Congress from the Thirteenth District of Massachusetts.

Sandy Hill To Change Financial Structure

[FROM OUR REGULAR CORRESPONDENT]

HUDSON FALLS, N. Y., October 5, 1936—Stockholders of the Sandy Hill Iron and Brass Works are to be offered a proposal to revise the financial structure of the corporation at a meeting early next week. The stockholders will be asked to act upon a proposition to amend the certificates of incorporation so as to change all of the previously authorized shares with par value, issued or not issued, into a different number of common shares with par value and into preferred shares without par value so as to provide that the total number of shares which the corporation may control henceforth will be 10,050, of this number 6,700 shares with a par value of fifty cents and 3,350 shares with no par value. Under the proposed plan the capital of the corporation would be at least equal to the sum of the aggregate par value of all issued shares having par value plus $90 in respect to every issued share without par value, plus such amounts as from time to time by resolution of the board of directors may be transferred thereto. The present outstanding shares of stock would be exchanged so that each stockholder would receive two shares of the new common stock and a single share of the new preferred stock for each share of his present capital stock.

To Demolish Former Writing Paper Plant

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., October 5, 1936—A WPA project for demolition of the Holyoke Mill property purchased by the Municipal Gas & Electric Department from the American Writing Paper Company has been approved by the Federal authorities, and work will begin immediately with 190 men employed. The sum of $66,831 was allotted for the purpose, and some mill equipment as well as brick will be salvaged from the wreck. It is understood that the other mill purchased by the city at the same time will be used eventually for expansion of the municipal department.

Outlook for Newsprint Brightening Rapidly

Securities Resume Former Leadership On Canadian Stock Exchanges—Consolidated Paper, Abitibi Common and Donnacona "A" Shares Particularly Active—Operating Conditions Healthier Than for Many Years Past.

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., October 5, 1936—As indicating the rapidly brightening prospects in the newsprint industry is the fact that in the past month newsprint securities have reassumed their former leadership of the Canadian stock markets. Consolidated Paper, with 117,394 shares traded in on the Montreal Curb, has had the greatest turnover of any industrial security on either of the two Montreal exchanges, while Abitibi common, with 45,651 shares and Donnacona "A" with 24,058 shares were among the thirteen most active securities on the two boards. While rumors of impending mergers may have had something to do with this activity, the chief influence behind the accumulation of "newsprint" is generally held to be the fact that operating conditions are healthier than they have been for many years.

Much interest has attached to an announcement from Vancouver stating that W. Barclay, sales manager of the Powell River Company, had intimated that his company would probably fall in line with any newsprint price boosts made by United States companies. His statement had specific reference to the announcement that the Pacific Coast newsprint producers in the United States had put contract prices for 1937 newsprint at $42.50 a ton, and that the Crown Zellerbach Corporation had quoted a non-contract or spot price of $46 a ton. Here in Eastern Canada the development of a spot market during 1937 is held to be a distinct possibility.

Price Brothers' Improved Position

In a report on Price Bros. & Co., for the fiscal year ended March 31 last, the Hon. Gordon W. Scott, trustee in bankruptcy, estimates that the company's output for the current year may approximate 300,000 tons of newsprint, an increase of some 31.6 per cent over the preceding year. He adds, however, that in this connection it should be noted that a very high proportion of this tonnage is for delivery in South American markets, from which the net return to the company is many dollars less per ton than the average of United States and Canadian sales.

During the fiscal year ended March 31 last, the company produced approximately 228,000 tons of newsprint. This is in contrast with 210,000 tons in the 1935 fiscal year and 160,000 tons in 1934. During the first 9 months of the past year, there was no increase in the basic price level for newsprint. In the last quarter there was an increase of $1 a ton but this was offset by increased costs.

During the past year the company spent $120,000 on necessary equipment in order that the River Bend mill might be operated as a 4-machine unit. This mill was built in 1926 and prior to the current year had never operated at capacity; having in fact never operated more than 3 machines at one time. Owing to the increase in the company's business it was necessary to operate all 4 units starting this year. As a result unit costs at this mill have declined considerably.

The company's sawmills have continued to run at capacity although still with very slight return in the way of profit. Similiar conditions have prevailed in connection with the company's cardboard and specialty business.

The profit and loss account showed that for the year there had been a net loss of $1,595,625, as compared with $1,628,744 in the previous year.

In discussing the company's investments, Mr. Scott pointed out that there had been a sharp increase in market value. The quoted market value of marketable securities at March 31 last was $3,272,000, as against $874,000 a year ago and $1,548,000 on March 31, 1934. The realizable value of the unlisted securities is unknown, but the receiver states that such values should not be less than $1 million.

Japanese Contract for Pulp

In connection with the installation of additional plant by the Royal Pulp and Paper Company, of Saint John, N. B., it is stated that the Brown Corporation has signed a contract to purchase 25,000 tons of rayon pulp during 1937 from the aforementioned company. It is further stated that this purchase is connected with an order the Brown Corporation has secured from Japan for 60,000 to 100,000 tons of various kinds of pulp, and that as a result of the order there will be increased employment in the corporation's mills at Berlin, N. H., also that the company has ordered three large digesters.

Wages for Lumberjacks

Premier Duplessis has announced that the minimum salary to be paid lumberjacks engaged by pulp and paper companies or contractors in Quebec, will in future be $40 a month. This minimum wage will apply to all persons working in the woods, except in the cases of "very old persons or inexperienced youths who are hired by companies out of sympathy.

Riordon Calls Bonds

Riordon Pulp and Paper Company has called by lot $83,000 par value of its 6 per cent first mortgage bonds on account of sinking fund, redemption to be made December 31 next at 105 and accrued interest. At the end of last year Riordon had outstanding $635,800, so that the current redemption will reduce the debt to $552,800.

New Rolland Issue

The Rolland Paper Company is floating an issue of $2,150,000 new first mortgage bonds, consisting of 3, 4, and 4½ per cent, to provide funds for the redemption of $2,035,000 of 5½ per cent bonds, due June 1, 1948, now outstanding, which are to be called for redemption on November 2 next. This financing will result in a saving in interest charges to the company of about $22,000 per annum.

Rochester Paper Moves New York Office

The Rochester Paper Company with mill at Rochester, Mich., has moved the location of its New York office from 102 King Street to 277 Broadway. The new telephone number is Worth 2-0976.

Complete stocks of all of this manufacturer's grades of blotting are now being carried in the Rochester Paper Company New York Warehouse at Commercial Stores, Inc., 96 Sullivan street.

Paper Makers Chemical Corp. Plans Casein Plant

Dairy Products Division Starts Construction of $100,000 Factory At Elroy, Wis. — Large Supply of Skim Milk Available for Making Casein for Paper Industry — Improved, Modern Process to be Used.

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., October 5, 1936—Construction of a $100,000 casein factory at Elroy, Wis., has been started by the Dairy Products Division of the Paper Makers Chemical Corporation. The plant will be located in one of the most important dairying centers of Wisconsin, where a large supply of skim milk will always be available for making large quantities of casein for the paper trade. An improved, modern process is to be used, and this plant is reported to be the first in the Middle West to produce under the new method. A portion of the plant will be operated by the Baraboo Valley Creamery Association for the production of buttermilk. The plant will be of fireproof construction, and will be rushed to completion during the fall months.

Work of Forest Products Laboratory

Development of new varieties of sheet material from wood is one of the objectives of the United States Forest Products Laboratory at Madison, Wis. Constant experimenting is going on to utilize more products from wood, and to use more of the chemical and fiber properties of wood. This is especially true of lignin, representing about 25 per cent of the residue, and for which few uses have yet been found. New chemical products also are being developed from cellulose, including nitrates, acetates, additional pulp products, textiles, transparent films, artificial silks, lacquers and other materials. A study also is being made of bacteria and fermentation to produce fuels and other useful materials from wood waste.

Consolidated to Redeem Bonds

First mortgage 5½ per cent gold bonds of the Consolidated Water Power Company totalling $1,700,000 will be redeemed November 1 at 102 and accrued interest. The company is owned by the Consolidated Water Power and Paper Company, Wisconsin Rapids, Wis. The original issue was $2,000,000, of which $300,000 had been retired through a sinking fund. New bonds are to be issued but they are not to be offered for sale, as they have been subscribed privately.

The Consolidated Water Power and Paper Company has announced its quarterly dividend of one per cent payable to stockholders this month.

Paper Chemistry Institute Lectures

Lectures by men prominent in the paper industry have been started by the Institute of Paper Chemistry, Appleton, Wis. Last week Royal S. Kellogg, of the News Print Service Bureau, New York, spoke on "Economics of the Newsprint Industry." A series of three lectures also was given by Charles Boyce, executive secretary of the American Pulp and Paper Association, New York. He explained the economic situation in the pulp and paper industry.

During the week of November 16, Dr. Joseph Rossman, patent counsel of the Marathon Paper Mills Company, Rothschild, Wis., will deliver a series of lectures. He will discuss the American patent law as it relates to the pulp and paper industry.

Eighteen first-year students of the Institute returned last week from Northern Michigan, where they saw at first hand the operations involved in the preparation of raw materials for pulp and paper mills. They have now begun their regular classes.

News of the Industry

Damages of $1,739.08 were awarded the Northern States Power Company, Eau Claire, Wis., in a suit against the former Dells Paper and Pulp Company of that city. The power company sought $4,296.18 as the balance due for power furnished under a contract with the paper company.

The contract was made in December, 1929, when the power company purchased the stock of the Eau Claire Dells Improvement Company, owned by the paper company, for $1,900,000. The Dells Paper and Pulp Company agreed at that time to purchase $500,000 worth of electric energy in the three years following May 1, 1930. The contract was modified in 1932 because of curtailed operations during the depression, and was reduced by $35,000. This left $125,490.52 to be spent by the paper company in the final year, but the power company alleged $121,194.34 was spent, leaving the balance on which the suit was based. S. R. Davis, formerly with the paper company and at that time vice-president of the Eau Claire Dells Improvement Company, was the principal defense witness.

An amendment to the articles of incorporation of the Badger Wood Plug Company, Appleton, Wis., has been filed with the secretary of state. It increases the common stock from 150 to 300 shares at no par value but with full voting power. The capital stock also includes 70 shares of preferred stock at $100 a share. A. A. Knoke is president of the company, and C. J. Voissem is secretary.

Purchase has been announced by the Bergstrom Paper Company, Neenah, Wis., of the A. D. DeLand Cheese Company's warehouse in that city. The building will be used for warehouse purposes, according to John Bergstrom, president.

Monthly meetings of the Lake States Section of the Technical Association of the Pulp and Paper Industry will be resumed October 13. A dinner will be held at Conway Hotel, Appleton, Wis., followed by a technical discussion. Howard W. Morgan, research associate at the Institute of Paper Chemistry, is the program chairman.

The estate of Charles A. Goodman of Marinette, Wis., late director of the Northern Paper Mills, Green Bay, Wis., amounts to approximately $1,250,000. Mr. Goodman had extensive lumber and timber interests.

"Chemical Control in the Paper Industry," was the subject of an address given by George J. Brabender, of the Marathon Paper Mills Company, Rothschild, Wis., at a meeting of the Lions Club at Wausau, Wis. He gave an interesting description of the chemist's part in successful manufacture.

Heads Detroit Sulphite Pulp & Paper Co.

H. R. Telfer, at a meeting of the board of directors of Detroit Sulphite Pulp and Paper Company, of Detroit, Mich., held October 2, was elected president to succeed J. M. Ward, resigned. Mr. Ward continues as a director of the company.

Paper Business Holds Up Well In Chicago

Volume of Orders for Various Grades of Paper Indicates Bright Outlook for Closing Months of Year—Both Fine and Coarse Paper Markets Steady—Sulphite Bonds Display Strength — Paper Stock Little Changed.

CHICAGO, Ill., October 5, 1936—The paper business in this territory is holding up very well, according to representatives of the various lines. Most mills, through their representatives here, are reporting good business and a sufficient volume of orders ahead to insure a brighter outlook at least until the holidays are over and inventory periods set in. Those divisions of the industry which supply to the Christmas trade are making advance predictions that the 1936 Christmas season will be easily the best from a retail standpoint since the 1928 Christmas period.

All lines reported favorably during the week, the list including krafts, groundwoods, news, book and covers and the board market. Sulphite bond continued to give a fair account of itself and the underlying trend in the general market was firm, keeping pace with demand. The board market reported a strong undertone. Specialties found the present season to their liking and Chicago representatives were optimistic over the present and near-future trend. Waste papers were little changed.

Paper Salesmen's Golf Outing

The attendance breaking outing of the Midwest Division, Salesmen's Association of the Paper Industry, which attracted 170 members and guests to Olympia Fields Country Club on September 24 is still being discussed by those who were fortunate enough to be able to attend. A total of 151 players competed for the prizes with the results as follows:

Low net, 17 and under-morning round, A. J. Austin; low net, 18 handicap and over, A. H. Seyler. Afternoon events: low gross, W. E. Williams; low net (17 and under), R. B. Harbison; low net (18 and over), Burt Tucker; low net, first nine, Ed Dahl; low net, second nine, H. W. Steinbrecker; low putts, G. J. Ticoulatt; low putts, first nine, George Fay; low putts, second nine, Arthur Bermingham; low gross, par 3 holes, Ray Odman; low gross, par 5 holes, Frank Haggarty, Jr., blind bogey, Bill Tilden; high gross, E. Schoenbeck; second high gross, J. Loughrin; high gross on one hole, Jim Knox (14); low net foresome, L. M. Sawyer, W. E. Williams, R. B. Harbison, I. H. Peck; high gross foursome, J. T. Daly, H. F. Carpenter, T. G. Olsen, Harold Pfister. Special good fellowship events for guests were won by the following: Bill Opfer, L. M. Sawyer, Art Drusch, George Sisson, 3rd, H. F. Carpenter, E. V. Buchanan, J. L. Goodson, C. T. Roos.

The event was the final one under the jurisdiction of Burt Fisher, of the Bergstrom Paper Company, who established a new attendance record for nearly every one of the monthly outings from May to September.

News of the Industry

The paper industry's generally recognized revival on a national scale is reflected in the business conditions for the week ending August 15 as reported by the Seventh Federal Reserve District for Wisconsin, Michigan, Illinois, Indiana and Iowa. The paper and printing concerns, 633 of them, reported 70,593 wage earners with earnings of $1,824,000 as of August 15. This is a 1.6 per cent increase in the number of wage earners and a 6 per cent increase in earnings as compared to July 15. The industrial groups reported a decrease of 2.5 per cent in wage earners and 2.4 per cent decrease in earnings for the same period, reflecting the comparatively excellent progress of the paper and printing industry in this territory.

The Chicago Graphic Arts Federation is utilizing the Chicago paper industry to assist in the educational program of the Federation for the benefit of new employees in sales departments of Chicago lithographing and printing concerns. A certain feature of the course entails the visiting of several Chicago paper jobber concerns, the latest being Bradner Smith & Co. The new employees visited all seven floors and executive offices of the Chicago company recently with W. M. McIntosh, vice president in charge of sales of Bradner Smith, acting as the guide.

As of September 26, the Swigart Paper Company, 717 South Wells street, Chicago, has issued a close out list (Number 12) covering book and cover papers. Under the book grades are enamels, English finishes, offsets, texts, vellum finishes, embossed finishes and etching papers. Cover papers include a well known line of perfect papers. Also included in the close out are boards and bristols, certain lines of writings, mimeographs, commercial envelopes, blotting papers and bond papers and announcements.

"How the Printer Prints," the effort of the Eastern Manufacturing Company to describe the various processes of printing, is meeting with a warm reception in Chicago. Described as the first of its kind to be issued by a paper manufacturer the book is interesting and educational and does an effective job of demonstrating the Eastern line.

C. P. Woodworth, Macomb, Ill., for a number of years traveling representative of the J. W. Butler Paper Company, Chicago, has been appointed manager of the Butler branch at Peoria. His place will be taken by Syl Clauser who will travel in Mr. Woodworth's territory. Mr. Woodworth has been affiliated with Butler for over thirty years and is widely known in the Illinois paper industry.

Important meetings of two branches of the paper industry are scheduled for Chicago the week of October 12. The Book Paper Manufacturers Association under the direction of Colonel Parker, will meet at the Drake Hotel for a series of meetings; while the Writing Paper Manufacturers Association, Emmett H. Naylor in charge, will hold a meeting of the Sulphite Bond Division at the same hotel and at very nearly concurrent dates.

George Cobean, executive of the Butler Paper Company, Chicago, was a prominent speaker at the convention of the United Typothetae of America at its annual sessions held in Cincinnati, September 28 to 30.

A proposal has been filed with the southern ports freight committee to establish a rate of 23½ cents per hundred pounds on wood pulp from New Orleans and Gulf Port to a point about twelve miles from East Chicago, known as Griffith, Ind. A plant at Griffith has been bringing wood pulp through the Great Lakes ports and continued growth beyond storage facilities is reported to be causing this request which, if granted, would provide the use of seaboard gateways.

Big U. S. Mill Demand for Canadian Pulpwood

Premier Hepburn, of Ontario, Attributes Remarkable Paper Mill Request to Removal of Export Ban—More Contracts Coming to Dominion From U.S. For Raw and Partly Manufactured Pulp—Position of Newsprint Improves.

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., October 6, 1936—The Hon. M. F. Hepburn, Premier of Ontario, says that the demand for labor in Ontario pulpwood and lumber camps will be exceptionally heavy this season. Men will be transported to whatever point they are needed and the government will co-operate in every way in putting them back to work. Premier Hepburn added that there had been a remarkable rush on the part of United States paper mills to get raw products from Ontario. This, he attributed, to the policy of the administration of removing the export ban on pulpwood. He said that the former government had held the lid tight down, and that the vast empire of timber in the north was in the hands of a few. This, he declared, had been changed, and the present authorities had realigned some of the limits and given them to bona-fide operators who had made contracts with American interests. The other day an agreement was completed which will allow pulpwood operators to sell 300,000 cords to American mills, and another 250,000 cords could be sold if suitable limits could be secured.

Continuing, Mr. Hepburn said that the reason American mills were turning to Canada was because they were afraid of what might happen in Europe. They did not want to depend on that market because of the unsettled conditions there, and besides the rate of exchange was favorable. At the same time, the newsprint industry had greatly improved its position, and paper machines in Ontario, which were shut down a few years ago, are now operating 24 hours a day. Premier Hepburn was of the opinion that the development would be even greater from this out, and that was the reason he was so confident there would be jobs for all single unemployed men if they wanted to work.

"There are more contracts coming to us from the United States for our raw and partly manufactured pulp, and this means more work for all," concluded Mr. Hepburn.

News of the Industry

The Fort William, Ont., Trade and Labor Council, at a recent meeting carried a resolution to the effect that action, and not excuses, was due Fort William from the Abitibi Power and Paper Company, and that, with the paper industry in a more healthy condition, and other mills receiving more than their share of tonnage, it was high time the Fort William Paper Company again put their mill in operation. The executive committee was authorized to take steps along this line.

An interesting event took place in the chapel of Ridley College, St. Catharines, Ont., on October 3 when George Colville Pauline was united in marriage to Miss Elizabeth Kelley, daughter of Mr. and Mrs. E. R. Kelley, St. Catharines. The happy couple left on a honeymoon cruise to Bermuda, and on their return will reside in Toronto. The bridegroom is a son of George W. Pauline, vice-president and managing director of the Alliance Paper Mills, Limited and is on the sales staff of that company which he joined about a year ago. Previous to that he worked in paper mill plants at Cornwall, Crabtree Mills, and Merritton. Many friends are extending congratulations.

The Great Lakes Paper Company, Limited, Fort William, Ont., have postponed the payment of interest due on October 1 on the bonds of the company. C. H. Carlisle, president of the company, states that in taking over the assets of the concern from the liquidators it was necessary to pay $442,894 for reorganization expenses and claims due. The payment was caused in large degree by delay and litigation entailed in the sale of the property. It is now essential that storage capacity of the mill be increased by adding at least one additional building which also involves constructing a dam and wings while roads must be built on certain timber limits. The company has sufficient banking accommodation to carry on all operations with the exception of permanent improvements and bond interest which must be met out of earnings. Mr. Carlisle states that the outlook is quite promising. Expenses and costs have been materially reduced and production and profit increased. The plant is now operating at full capacity twenty-four hours a day. The Ontario government is also reallocating the timber limits which should prove beneficial both to the company and the industry.

George Ruickbie, traffic manager of the Bathurst Pulp and Paper Company, Bathurst, N. B. was a recent visitor to Moncton. Speaking of business conditions, he said that his company is operating to capacity, the product being turned out at the mill having a steady demand. Woods operations during the coming winter will be on a larger scale than last year, the heavier cut of logs which the operators are taking out being to meet the greater demand in the United Kingdom. Mr. Ruickbie added that pulpwood cutting is also scheduled to be carried on more extensively.

Further contracts have been let for the new $300,000 factory which Canadian Wallpaper Manufacturers, Ltd., are erecting in the town of Leaside which is a busy suburban manufacturing center.

The wages of all the employees of the plant of Provincial Paper, Ltd., at Thorold, Ont., have been raised, restoring the scale to the level of 1928.

War on the European spruce saw fly which it is feared may destroy Canada's valuable supply of spruce unless spread of the pest is checked was in full swing recently at North Bay, Ont., with the release of 300,000 parasites in that district. The work was carried out under the supervision of the North Bay forestry branch. The parasites were both in the fly and cocoon stage.

H. & J. Shapiro Add Porthos Cover

"We are very proud to announce," says H. & J. Shapiro Company, Inc., of 40 West 25th street, New York City, "that we have added to our cover lines a new line of coated cover, namely, Porthos Cover, manufactured by the United Manufacturing Company, Springfield, Mass.

"Porthos cover is very new, unlike other cover papers, is coated on both sides, and embossed with a Spanish leather effect, giving it a two tone appearance. It has great strength, and will enhance tremendously the appearance of any catalogue or booklet for which Porthos cover is used. Porthos cover is available in nine colors, in medium weight, in two standard sizes. Unusual and attractive sample books are being distributed."

Obituary

Steve E. Michaud

Steve E. Michaud, one of the most prominent leaders in the kraft paper industry in the United States, and manager of the Advance Bag and Paper Company of Hodge, La., died from pneumonia at a Shreveport sanitarium on September 25 after an illness of a week. He was 57 years old and had been a resident of Louisiana since 1928.

Mr. Michaud was born in Winn, Me., and in his early life worked in a mercantile store in that community. It was there he became acquainted with John Kelly, now the president of the Advance Bag and Paper Company. He went into the Maine woods in 1897 and got his first information about the manufacture of kraft paper from raw materials.

From 1904 to 1907, he was superintendent of a lumber company in Maine. In 1917 he managed one of the largest stock farms in the world in Maine. In 1920, he built and managed for eight years the Star theater, Van Buren, Me.

In 1928, he came to Louisiana at the request of Mr. Kelly to manage the Advance Bag and Paper Company there. He had been actively engaged in that work until his final illness.

Mr. Michaud is survived by his widow, seven sons and one daughter; Henry, Nelson, Jimmie and John Michaud, all employees of the Advance Bag and Paper Company; Edwin and Joe Michaud, students at L. S. U.; Jerry Michaud, grammar school student, and Dorothy Michaud, Jonesboro High School student.

William A. Jack

GRAND RAPIDS, Mich., October 5, 1936—William A. Jack, long and well known as one of Grand Rapids' most civic-minded citizens died unexpectedly on September 30 at his home, 301 College avenue, S. E. He was 74 years old. Death was attributed to coronary thrombosis.

Born May 16, 1862, in Kittanning, Pa., Mr. Jack came to Grand Rapids more than thirty years ago to organize the American Paper Box Company, of which he was general manager for many years. The firm now is known as the American Box Board Company.

At the age of fifteen he sold stationery and other products in Pennsylvania and Ohio. Later he obtained a patent rights to a folding millinery box that had come to his attention and formed a company in Cleveland. He later came upon a new design for a folding suit box, acquired the patent and with the help of local business men started the Grand Rapids company.

He is survived by the widow and two sons, William W., a student at the University of Michigan, and Thomas, a high school pupil.

William E. Wright

CHICAGO, Ill., October 5, 1936—William E. Wright, general paper merchant, died in his home at 1360 East Forty-eighth street recently after an illness of several months.

He began his career with Bradner, Smith Paper Co. at an early age and founded his own company in 1903.

Mr. Wright was a member of the Chicago Athletic Association and for thirty years was a member of the Alexander Hamilton Club of Chicago. He organized Illinois Council No. 33 of the Royal League and served in the 131st Illinois Infantry during the war.

He is survived by the widow, Mrs. Madeliene Brown Wright.

Adam F. Gebhard

Adam F. Gebhard, of the Gebhard Paper Company, Buffalo, N. Y., passed away on September 28 after a career of 57 years in the paper merchandising business.

Winners in Maine Safety Contest

The Eastern Manufacturing Company, South Brewer in Paper Group A, and the International Paper Company, Orono in Paper Group B, were winners in the State-wide safety contest conducted by the Safety Engineering Division of the Maine Department of Labor and Industry.

In the Paper Group A, won by the Eastern Manufacturing Company, of South Brewer, there were 10 entries—the Eastern Company, the Oxford Paper Company, (Maine Coated Division) and Oxford Paper Company, Rumford; Continental Paper and Bag Corporation, also of Rumford; St. Croix Paper Company, Woodland; Hollingsworth and Whitney Company, Waterville; Fraser Paper, Limited, Madawaska; International Paper Company, Chisholm; S. D. Warren Company, Cumberland Mills; Penobscot Chemical Fibre Company, Great Works.

The Eastern Manufacturing Company, Maine Coated Division of the Oxford Paper Company, and St. Croix Paper Company, shared perfect records; but as the Eastern Company had the largest crew, more "man hours" hours were involved—meaning, of course, greater opportunity for accidents.

The man hours were: Eastern Company, 858,513; Oxford Paper (Maine Coated Division) 456,884; St. Croix Paper, 444,434.

In Paper Group B, won by the International Paper Company of Orono, there were eight other entries— Hollingsworth & Whitney Company, Gardiner plant; Hollingsworth & Whitney Company, Madison plant; Rogers Fibre Company, Bar Mills; Maine Seaboard Company, Bucksport; Eastern Manufacturing Company, Lincoln plant; International Paper Company, Riley plant; International Paper Company, Livermore Falls plant; S. D. Warren Company, Gardiner.

The International Paper Company, Orono plant; Hollingsworth & Whitney Company, Gardiner plant; Hollingsworth & Whitney Company, Madison plant; and Rogers Fibre Company of Bar Mills, all had perfect records. The hours:

International Paper Company, Orono, 156,108.
Hollingsworth & Whitney Company, Gardiner, 128,702.
Rogers Fibre Company, 103,622.
Hollingsworth & Whitney Company, Madison, 63,194.

Champion Paper & Fibre Reports Earnings

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, October 5, 1936—The Champion Paper and Fibre Company, Hamilton, Ohio, Friday reported a consolidated net income of $396,418 for sixteen weeks ended August 16. This is equivalent to 46 cents a share on outstanding common stock.

Logan G. Thomson, president of the company announced the figures in a letter to stockholders in which he said the date of the annual meeting will be October 13 and that the same will be held in Hamilton.

Mr. Thomson stated that if earnings continue at the present rate, they will approximate $1.50 a share for the fiscal year ending April 27. He also noted that the latest period includes the usually dull summer months.

The report points out that per share earnings include dividend provisions for $1,750,000 of preferred stock and 78,381 shares of common recently issued to finance construction of the Houston, Texas, plant.

Government Paper Bids and Awards

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., October 7, 1936.—The Government Printing Office has received the following bids for 94,150 pounds (350,000 sheets) of halftone paper; Whitaker Paper Company, 5.67 cents per pound; Jonn F. Post, Inc., 5.67 cents; Paper Corporation of the United States, 5.6 cents; Stanford Paper Company, 5.67 cents; R. P. Andrews Paper Company, 5.67 cents; Mathers-Lamm Paper Company, 5.67 cents and Barton, Duer & Koch Paper Company, 5.67 cents.

For 36,000 pounds (115,000 sheets) of single coated book paper; Reese & Reese, Inc., 6.69 cents; John F. Post, 6.69 cents; Whitaker Paper Company, 6.69 cents; Graham Paper Company, 6.69 cents; R. P. Andrews Paper Company, 6.69 cents; Barton, Duer & Koch Paper Company, 6.69 cents; Enterprise Paper Company, 6.39 cents; Dobler & Mudge, 6.69 cents; and Royal Card & Paper Company, 6.25 cents.

For 13,000 pounds (various sizes) binders board; Mathers-Lamm Paper Company, 4.6 cents per pound; Barton, Duer & Koch Paper Company, 4.6 cents; and R. P. Andrews Paper Company, 4.6 cents.

For 500 pounds of red stereotype molding paper; Cauthorne Paper Company, 13 cents per pound; and Russell Products Company, 14.5 cents.

For 420,000 pounds of white sulphite index and 36,000 pounds of same single ply; George W. Millar & Co.. 5.91 cents per pound; Graham Paper Company, 5.64 cents; Edgewater Paper Company, 5.64 cents; Old Dominion Paper Company, 5.909 cents; Paper Corporation of the United States, 5.91 cents; Whitaker Paper Company, 5.91 cents; Virginia Paper Company, 5.91 cents; Stanford Paper Company, 5.91 cents; R. P. Andrews Paper Company, 5.91 cents; Barton, Duer & Koch Paper Company, 5.91 cents; and Mathers-Lamm Paper Company, 5.8 cents.

For 134,500 pounds (500,000 sheets) of single coated book paper; Whitaker Paper Company, 6.69 cents per pound; Reese & Reese, Inc., 6.69 cents; John F. Post, Inc., 6.69 cents; Stanford Paper Company, 6.69 cents; R. P. Andrews Paper Company, 6.69 cents; Barton, Duer & Koch Paper Company, 6.69 cents; and Edgewater Paper Company, 6.25 cents.

For 2,000 sheets of 24 x 36 brown cloth lined paper; Walker-Goulard-Plehn Company, $130.00 per M sheets; Mathers-Lamm Paper Company, $133.33; Whitaker Paper Company, $133.20; W. D. Hess Paper Company, $135.75; R. P. Andrews Paper Company, $143.00; Barton, Duer & Koch Paper Company, $133.30; Reese & Reese, Inc., $136.00; Virginia Paper Company, $137.50; and J. R. Howarth Paper Company, $136.30.

The Government Printing Office has announced the following paper awards:

The Whitaker Paper Company will furnish 5,200 pounds (25,000 sheets) of 26½ x 41 emerald green coated cover paper at 7.66 cents per pound, bids for which were received on September 16.

The Mathers-Lamm Paper Company will furnish 94,150 pounds (350,000 sheets) of 38 x 48 halftone book paper at 5.63 cents. Barton, Duer & Koch Paper Company will furnish 10,000 pounds (4,000 sheets) of 20 x 30 hard rolled binder's board at 4.6 cents per pound. Bids for these items were received on September 14.

Barton, Duer & Koch Paper Company will also furnish 5,000 pounds (2,500 sheets) of 22 x 28, best quality, hard rolled binder's board at 4.6 cents per pound, bids for which were received on September 11.

The Whitaker Paper Company will furnish 1466 pounds (5,200 sheets) of 31½ x 31½ single ply white sulphite index paper at 6.06 cents per pound, bids for which were received on September 9.

Reese & Reese, Inc., will furnish 134,500 pounds (500,000 sheets) of 38 x 48" single coated book paper at 6.19 cents per pound, bids for which were received on September 2.

The Mathers-Lamm Paper Company will furnish 48,000 sheets of 20 x 24" buff gummed paper at $9.10 per M sheets, bids for which were received on August 21.

The J. R. Howarth Paper Company will furnish 2,000 sheets of 24 x 36" Quaker drab cloth lined paper at $114 per M sheets and the Tarentum Paper Mills will furnish 734 pounds of 30 x 33" red sulphite paper at 8.11 cents per pound. Bids for these items were received on August 14.

The Hawthorne Paper Company will furnish 400 pounds of red stereotype molding paper in 24" rolls at 13 cents per pound, bids for which were received on August 12.

H. D. Wells Gets Patent on Pulp Hydration

[FROM OUR REGULAR CORRESPONDENT]

GLENS FALLS, N. Y., October 5, 1936—Harold D. Wells, prominent inventor of this city, has been granted a patent on his invention of a pulp hydrator. Examiners after completing a comparison of his invention with all similar inventions previously patented ruled that he was entitled to credit for several separate new ideas. Application for patent was filed in 1933 and patent rights for manufacture have not been assigned. The invention is described as follows:

"A pulp hydrator comprising an elongated casing having an inlet and an outlet, a drive shaft mounted longitudinally in said casing and disposed coaxially therewith, a plurality of sun gears secured on said shaft, planet gears meshing with said sun gears, orbit gears secured at the casing side wall and meshing with said planet gears, annular baffles projecting radially beyond said sun gears, and additional annular baffles between the first named baffles and cooperable therewith in causing the pulp to zig-zag through the hydrator.

"A pulp hydrator having relatively rotable members between which the pulp is fed, said members having intermeshed gear teeth and having co-acting continuous cylindrical pulp rolling surfaces at the ends of their gear teeth, to act upon the pulp, and baffles to cause a zig-zag flow of the pulp through the hydrator, the diameters of said pulp rolling surfaces being substantially the same as the pitch lines of said gear teeth."

Fillmore & Slade Tissue Mill Sold

[FROM OUR REGULAR CORRESPONDENT]

TICONDEROGA, N. Y., October 5, 1936—Announcement is made here that Charles A. Hunt and K. A. Kroepsch, of this place, have acquired by purchase the Fillmore & Slade tissue paper mill along the North Bennington, Vt., roadway. In his previous connection Mr. Hunt has served as general manager of the local branch of the International Paper Company, starting in a minor role and working up to a responsible position. It was stated that there will be no changes in the personnel of the plant by the new owners except that Mr. Hunt will devote his entire time to the management of the Bennington mill. The property was sold by the estate of Henry D. Fillmore, former partner in the concern, who purchased the interest held by Burnside O. Slade when he died. Mr. Fillmore died last summer and the future ownership has been uncertain for some time.

Philadelphia Paper Industry News

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., October 5, 1936—Norbert A. Considine, president of the Paper House of Pennsylvania and the Paper Trade Association of Philadelphia returned home on Friday last after a three months' visit in Scandinavia. Mr. Considine spent most of the time in Finland. While there he visited many of the pulp and paper mills, and during the course of his stay in connection with the new reciprocal trade treaty between the United States and Finland discerned the principal item was the reduction of duty on ply woods. The Finnish ply wood mills have entrusted to Mr. Considine's care the organization of their sales in the United States, and for that purpose Considine & Co. is being reorganized and will act as agents for all the leading ply wood mills of Finland. While in Finland, Mr. Considine was received by the President and also the Premier of Finland and was appointed to full Consulship, he having formerly served as Vice-Consul for many years.

The Thos. W. Price Company, has just issued an attractive and unique price list and catalog for printers, lithographers, publishers and stationers. This catalog supplants the one formerly issued by this company, known to the printing trade as "The Printers' Bible." It is equipped with celluloid guides for ready reference to bonds, ledgers, writings, book, coated, covers, gummed, envelopes, cardboards, announcement and miscellaneous. Also included are a guide to ledger form design, showing a ruled specimen, and under the heading "Finishing" is a complete array of eyeletting, punching, perforating together with prices for round and clipped corners.

Interspersed among the indices on page 45 is a photograph of the first paper mill in America, built in 1690, together with a tribute to Dill & Collins, Inc., lineal descendants of this pioneer paper mill. The Thos. W. Price Company has been representing Dill & Collins, Inc., for over thirty years.

Crown Zellerbach Changes

A. B. Lowenstein, vice-president of Crown Zellerbach Corporation, has been transferred from New York City to the corporation's headquarters in San Francisco. H. O. Nichols, assistant sales manager of Crown Williamette Paper Company, who for the past two years has been located in New York City as eastern sales manager, will succeed Mr. Lowenstein and has been appointed manager of the Eastern Division of Crown Zellerbach Corporation with headquarters at 122 East 42nd street, New York City.

J. G. Kraemer Made Vice President

LOUISVILLE, Ky., October 5, 1936—Announcement of the appointment of Joseph G. Kraemer to the position of vice president and sales manager of the Southeastern Paper Company, 206 W. Main street, has been made by H. Ewing Harris, president.

Mr. Kraemer formerly was connected with the Diem Wing Paper Company, Cincinnati.

Under a program of expansion, announced by Mr. Harris, Mr. Kraemer will be in charge of new departments scheduled to be added to the company.

Michigan Superintendents to Meet Oct. 22

KALAMAZOO, Mich., October 5, 1936.—The October meeting of the Michigan Division of the American Pulp and Paper Mill Superintendents Association will be held on Thursday evening, October 22 at 7 P. M. at the Park-American Hotel.

Plans for Financing New Container Mill

Since announcing that it proposed to build a kraft plant in Florida, financed through the sale of new securities, Container Corporation of America has been approached with a number of proposals which may obviate the necessity of new financing on its part says the Chicago Bureau of the *Wall Street Journal.*

These proposals include offers to furnish the bulk of the capital needed to build the new plant, with Container's investment in the property restricted to an amount it could finance out of treasury cash. Others have offered to build a southern kraft plant if Container would enter into a long-term contract to take a substantial part of the kraft pulp output on a cost-plus basis. Any of the proposals would give Container the kraft source it is seeking without the necessity of new financing on its part and therefore without affecting the position of its capital stock.

Under its earlier plan company proposed to sell some $10,000,000 of $50 par preferred stock and to borrow some $4,000,000 from banks. Of the total amount obtained about $6,000,000 was to be spent on the plant and the balance was to be used for the retirement of outstanding funded debt. Container still proposes to refund its outstanding bonds and debentures. But with the next interest date only 45 days away, it is not likely that company will do anything in this regard until next year.

Proposals offered the company will probably be discussed by directors at their next meeting scheduled for October 29.

At that time, too, directors will consider the dividend payable in November and it is expected, in view of the surtax on undivided profits and the earnings outlook for the full year 1936, that they will vote a larger payment than the 25 cents paid August 15. That payment was the first on the capital stock since January 1, 1931.

Company's business has improved steadily since early this year and its profits in the three months ended September 30 were the largest for any quarter this year. From present indications company's report for the third quarter will show net profit approximately equal to that of $394,174 or 60 cents a share on 643,540 shares of capital stock earned in the like 1935 period. Net in the period was cut by about $65,000 because of the company's decision to grant its employees, paid on an hourly basis, one weeks vacation with pay. In the June quarter this year Container's net amounted to $302,542 or 46 cents a share.

J. T. Wright Goes To Dayton

J. T. Wright, manager of the J. L. Morrison Division of the Harris Seybold Potter Company has moved his home from Niagara Falls, New York, to Dayton, Ohio, where after Labor Day the Morrison organization joined the Seybold Division and the J. T. Wright Division of the Harris Seybold Potter Company.

Mr. Wright, consulting engineer and sales executive of wide experience, formerly was president of the J. T. Wright Company of Cincinnati, Ohio. This concern, some years ago, became a unit of Harris Seybold Potter Company, at which time Mr. Wright became manager of both the Seybold and Wright sales organizations. After a short excursion into other fields, Mr. Wright returned to the Harris Seybold Potter Company as manager of the Morrison organization in Niagara Falls. For the past year or more, he has been engaged in improving and extending the line which Morrison have manufactured for many years—wire stitching machines used in the fibre box and book making industries and wherever two pieces of material must be fastened together.

Import Committee Reports Paper Cases

A report by Warren B. Bullock, manager of the Import Committee of the American Paper Industry tells of several decisions by the United States Customs Court upholding the position taken by the paper industry on these shipments. Among the cases decided in favor of the American industry were the following:

An importation of paper in sheets 22 to 28 inches for the Boston Paperboard Company was held dutiable as printing paper, the court stating: "The burden of proving the fact that the paper in question was chiefly used for the printing of newspapers rested upon the plaintiffs, which obligation they failed to meet."

Printing paper in sheets 23 by 37 inches in size imported into San Juan, Puerto Rico, classified for duty as printing paper, claimed by importer to be duty free as standard newsprint. The paper was classified for duty because its sulphite pulp content was 50 per cent, and the court upheld this classification.

Filter paper imported at New York classified for duty at 35 per cent as paper cut into shapes, claimed by importer to be dutiable at 5 cents per pound and 15 per cent as tissue paper. The court upheld the appraiser's classification.

An importation of cardboard discs at Chicago was held by the Customs Court to be subject to an additional duty at 10 per cent for not being properly marked with the country of origin. The importer was required to mark each package containing 50 discs before he could secure possession of the merchandise, and the additional duty was also collected.

To Market Sealkote

Some time ago it was announced that Sealkote Corporation was developing a new protective material to provide paper with a greater degree of resistance or proofness against grease, water moisture, etc. This objective has been attained in the Sealkote line of solutions. Further studies were carried on to secure the greatest utility and applicability, and to have the lowest costs consistent with superior quality.

Production is now under way and the present output of several thousand gallons per day will be stepped up as rapidly as possible.

The distribution and servicing of Sealkote is to be handled exclusively by Engineer and Licensing Corporation, 40 South Clinton Street, Chicago. A New York office will be opened shortly to increase the accessibility of service.

New Morse Chain Bulletin

The Morse Chain Company, of Ithaca, N. Y., has just issued a new Stock Drive Bulletin which contains interesting and instructive information for the paper industry.

Miscellaneous data on silent chain drives are listed by horsepower for standard motor speeds. The tables show, in addition to prices, complete information regarding both chain and sprockets.

Stock bores as well as maximum bores are shown. Speed ratios are shown so that drives can be easily selected for other than standard motor speeds.

To Enlarge Roll Department

The American Wringer Company, Woonsocket, R. I., manufacturers of tensilastic rubber rolls, has started the erection of an addition to its mechanical roll department. This new construction has been made necessary because of the greatly increased business in tensilastic rubber roll coverings.

Adds William R. Gibson to Staff

Kenneth Shibley, of Seattle, Wash., representing Hagan Corporation and Hall Laboratories, Inc., of Pittsburgh, Pa., specializing in combustion control and boiler water conditioning for steam power plants, has added to his staff William R. Gibson, who has had a wide experience in the water conditioning and engineering fields, especially in connection with the pulp and paper industry.

As the representative of Hall Laboratories in the Pacific Northwest, Mr. Shibley has made available to scores of plants, including some of the finest paper mills on the Pacific Coast, the best knowledge that has been gained in recent years concerning the treatment of water in generating steam—particularly steam of good quality which is a necessity in the exacting processes of paper making.

With the addition of Mr. Gibson to Mr. Shibley's staff, and the addition of the Hagan Control account, the organization broadens its interest in the power field.

Mr. Gibson originally hailed from Glasgow, Scotland. For eight years he was in charge of construction and erection work in England and Scotland; he put in four years during the war, mostly in Egypt and Palestine, with the Royal Engineers, where he had charge of water supply and pipe line work. Coming to this continent he was for four years with the Whalen Pulp and Paper Company of British Columbia; later became chief engineer of power plant for the Zellerbach Corporation, and has been consulting engineer on many power plant problems for the mills of that concern.

R. F. C. Loans to Paper Concerns

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., October 7, 1936.—During the month of August the Reconstruction Finance Corporation authorized a loan of $160,000 to the Bryant Paper Company, Kalamazoo, Mich.

Other authorizations in connection with the paper industry made during the month of August by the Corporation include; to the American Envelope Company, Chicago, Ill., $40,000; Hurlburt Paper Company, South Lee, Mass., $239,500; and Unity Paper Corporation, Potsdam, N. Y., $85,000.

G. L. Momberg Leaves Whitaker Paper Co.

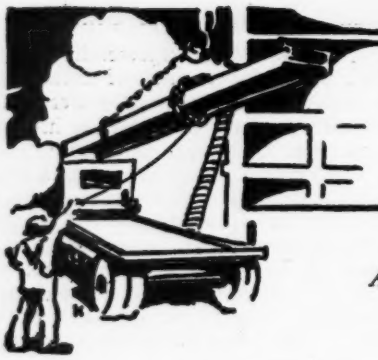
George L. Momberg has severed his connection as vice-president and general manager of the Detroit branch of the Whitaker Paper Co. of Cincinnati, effective October 1. Mr. Momberg has made no definite connections as yet, but expects to announce his plans for the future within a few days. In the meantime he will continue to reside at 2957 Pasadena avenue, Detroit, Mich.

United Paperboard To Change Stock

The New York Stock Exchange has been notified by the United Paperboard Company, Inc., of proposed change in par value of common stock from $100 to $10 per share and increase in authorized shares from 120,000 to 400,000, each present share to be exchanged for two new shares.

R. M. Myers Agent for Advance Bond

The long established firm of R. M. Myers & Co., Inc., of Rochester, N. Y., is now an agent for Advance Bond, one of the 100 per cent white rag papers made by the L. L. Brown Paper Company of Adams, Mass.



CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Green Bay, Wis.—The Straubel Paper Company, 625 Willow street, has approved plans for one-story building, 82 x 110 feet, to be used primarily for storage and distributing service. Erection will be carried out by day labor and excavations will be placed under way at once. Cost about $30,000, including equipment.

Emeryville, Cal.—The Paraffine Companies, Inc., manufacturer of heavy building paper stocks, composition products, etc., has awarded general contract to Barrett & Hilp, 918 Harrison street, San Francisco, for new addition to mill, for which superstructure will be placed under way at once. It will be one-story, reported to cost close to $50,000, including equipment. Leland Rosener, 233 Sansome street, San Francisco, is engineer. Company headquarters are at 475 Brannan street, San Francisco.

Natchez, Miss.—The Mississippi Pulp Products Company has acquired a local building and will take over at once for new plant for the manufacture of a line of pulp products. Equipment will be installed for sizable capacity. It is expected to begin operations at early date.

New Haven, Conn.—The National Folding Box Company, Alton and James streets, manufacturer of folding paper boxes and containers, has approved plans for new addition to plant, consisting of a one-story top addition to beater building, 30 x 100 feet. General contract has been let to the E. & F. Construction Company, 94 Wells street, Bridgeport, Conn., which will begin work at early date. Cost reported over $30,000, including equipment. Fletcher-Thompson, Inc., 1336 Fairfield avenue, Bridgeport, is architect and engineer.

Lambertville, N. J.—Walter Almy, Philadelphia, Pa., and associates, recent purchasers of the paper mill and property on South Main street, formerly held by the William Mann Paper Manufacturing Company, have work nearing completion on remodeling and improving building, as well as equipment repairs and placements. New owners are said to be arranging early opening of the mill for the production of special processed papers, including tarnish-proof papers. Facilities will be provided for employment of sizable working force.

Fulton, N. Y.—The Oswego Falls Corporation, manufacturer of paper board and wood pulp board products, has awarded general contract to the H. K. Ferguson Company, Hanna Building, Cleveland, Ohio, for new addition to mill, to be one-story, estimated to cost close to $50,000, including equipment. Superstructure will be placed under way at early date. A sub-contract for structural steel framing has been let to the Rogers Structural Steel Company, Corry, Pa.

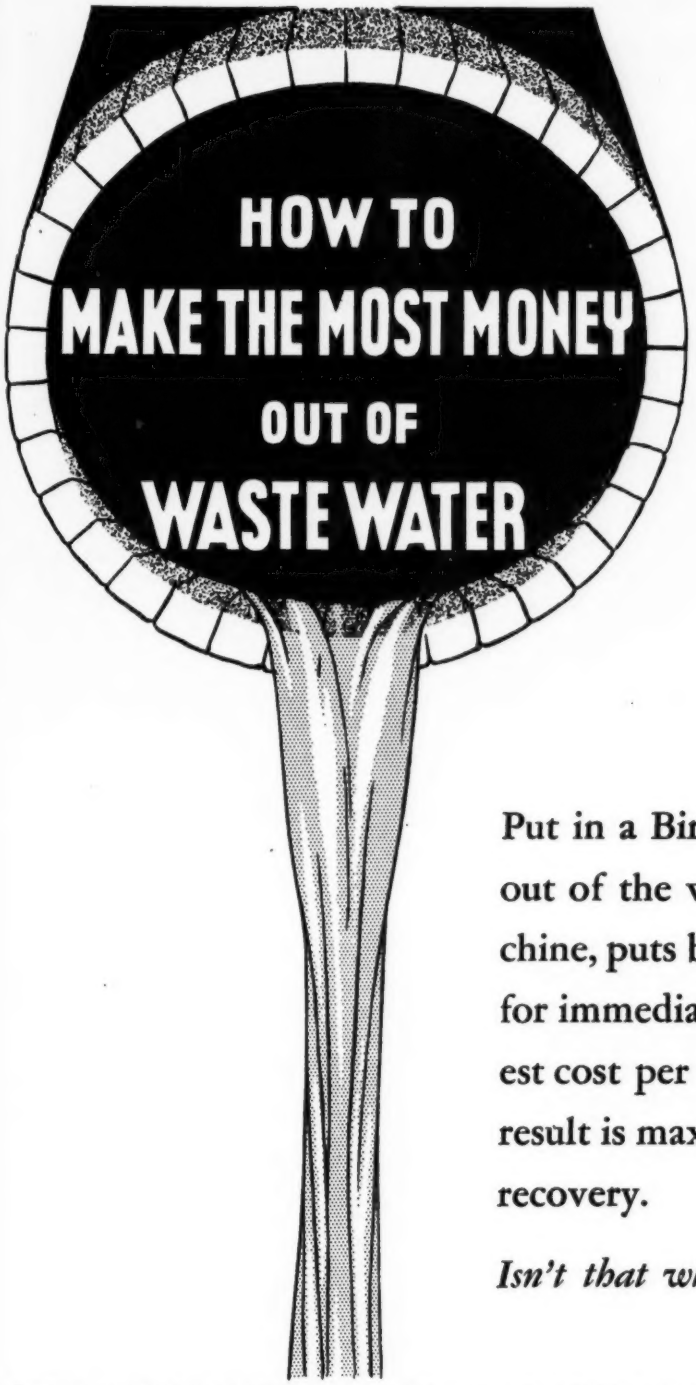
Philadelphia, Pa.—The Tompkins Label Service, Frankford and Allegheny avenues, manufacturer of paper labels, etc., is running on a capacity schedule at paper converting plant, both for production of gummed and ungummed labels, on basis of about 60,000,000 per month. Company is now giving employment to an extra shift to handle present business. It is expected to hold to current schedule for an indefinite period. J. Kirby Tompkins is president.

Cincinnati, Ohio—The Clopay Corporation, York street, manufacturer of paper products, has awarded general contract to the Parkway Construction Company, Keith Building, Cincinnati, for proposed new addition to paper converting plant, recently referred to in these columns. It will be two-story, 100 x 220 feet, reported to cost close to $100,000, with equipment. A portion of unit will be used for storage and distributing department. Carl J. Kiefer, Inc., Schmidt Building, Cincinnati, is consulting engineer.

St. Louis, Mo.—The Universal-Engel Paper Box Company, Inc., 2507 North Broadway, manufacturer of paper boxes and containers, has leased building at Sixth and O'Fallon streets, and will occupy for expansion. Improvements will be made in structure at early date, including installation of an automatic sprinkler system.

Charleston, S. C.—The West Virginia Pulp and Paper Company, Inc., 230 Park avenue, New York, N. Y., will begin immediate erection of structural steel framing for main buildings at new mill at Charleston, previously referred to in these columns, comprising group of several units, to be equipped for an initial capacity of about 500 tons of pulp and kraft paper liners per day. Structural steel award has been made to the Virginia Bridge Company, Roanoke, Va. Main paper-making machine will be furnished by Pusey & Jones Corporation, Wilmington, Del., and unit is now in course of construction. Company is awarding contracts for various equipment, including that for new power plant. Awards have been placed with Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pa., and to General Electric Company, Schenectady, N. Y., for electric equipment, while boiler units will be furnished by Babcock & Wilcox Company, New York; the Riley Stoker Company, Worcester, Mass., has awards for stokers, while Combustion Engineering Company, New York, will furnish other equipment. New mill is scheduled for completion about the middle of 1937. The Morton C. Tuttle Company, Park Square Building, Boston, Mass., is general contractor. Plant is estimated to cost close to $5,000,000, with machinery.

Fort Dodge, Iowa—The National Gypsum Company, 190 Delaware avenue, Buffalo, N. Y., manufacturer of wallboard, insulating board and kindred products, is considering extensions and improvements in wallboard mill at Fort Dodge, including construction of new mill units and installation of equipment for large capacity. Program is reported to cost over $100,000, with machinery. Company has concluded negotiations for purchase of a tract of about 325 acres of gypsum properties near Fort Dodge,



Put in a Bird Save-All. It gets the fibres out of the water leaving the paper machine, puts both fibre and water in shape for immediate re-use and does it at lowest cost per ton of recovered stock. The result is maximum net profit from waste recovery.

Isn't that what you want in a Save-All?

BIRD MACHINE COMPANY · SOUTH WALPOLE, MASSACHUSETTS

BIRD SAVE-ALL

YOU CAN MAKE MORE MONEY WITH NEW BIRD MACHINERY

for reported consideration of about $85,000, and will use for raw material supply.

Metuchen, N. J.—The Celotex Corporation, 919 North Michigan avenue, Chicago, Ill., manufacturer of wallboard products, insulating board specialties, etc., has taken over former plant of R. J. Scott & Co., Metuchen, recently purchased from the receiver for last noted company, and will carry out expansion and improvements at once. Company has begun excavations for new addition. Plant will be developed for an Eastern branch mill and will give employment to a large working quota. B. G. Dahlberg is president.

Norrkoping, Sweden—The Swedish Cooperative Union has approved plans for early establishment of large wood pulp mill for production of raw material for rayon manufacture. Initial plant will comprise several units and will be developed for large output. It is estimated to cost over $150,000, including equipment.

Rome, Italy—Ministry of Industry, Government of Italy, Rome, has plans under way for the construction of a series of pulp mills for the production of cellulose for paper, as well as explosive manufacture. Sites for proposed plants will be secured at Bologna, Ravenna, Alessandria, Ferrara and Catania. Each mill will comprise several units, equipped for an initial output of about 10,000 tons of material per annum. Entire project is reported to cost over $1,500,000. The Government has recently established a similar mill at Foggia, near Naples, equipped for like capacity, and proposes to expand this plant at early date for a capacity of about 20,000 tons per year.

Powell River Co. Changes

[FROM OUR REGULAR CORRESPONDENT]

VANCOUVER, B. C., September 26, 1936.—Important changes have taken place in the management of the Powell River Company, Limited, at Powell River, B. C., following the recent resignation of A. E. McMaster, vice-president and general manager. Harold S. Foley, executive vice-president of the company, shortly after Mr. McMaster's retirement, announced that Joseph Falconer, director and resident manager, has now been appointed comptroller, and that B. A. Evans, assistant resident manager, has succeeded Mr. Falconer as resident manager of the plant.

Both Mr. Falconer and Mr. McMaster won promotion to the positions they have held through years of service with the Powell River Company. Mr. Falconer joined the organization in 1913, and with the exception of four years spent overseas during the war has remained with the company since that time. He started as a clerk, and in 1926 was made accountant. Since then he has been mill secretary and assistant manager. Since 1932 he has acted as resident manager.

Prior to joining the Powell River Company Mr. Falconer was with the Traders' Bank in Toronto and the Spanish River Pulp and Paper Company. He was born in Port Knockie, Banffshire, and came to Canada at the age of seventeen. Mr. Falconer served with distinction during the war, being wounded on several occasions, and in 1918 securing the D.C.M. for heroism in action. He has for years been active in ex-servicemen's organizations, and is a keen sportsman and leader in athletic circles.

Heads Boxboard Calipers Committee

J. D. Malcolmson, of Robert Gair Company, Inc., 155 E. 44th street, New York, has been appointed by the United States Bureau of Standards, Department of Agriculture, chairman of the simplified practice committee to standardize boxboard calipers.

NEW KRAFT MILL FOR BRUNSWICK

(Continued from page 9)

The initial board of directors of the Brunswick Pulp and Paper Company was announced as follows: George H. Mead, president of the Mead Corporation, Dayton, Ohio; C. R. Van de Carr, Jr., vice president of the Mead Corporation, Chillicothe, Ohio; Sydney Ferguson, vice president of the Mead Corporation, New York; Howard E. Coffin, Sea Island Beach, Ga., Millard Reese, Brunswick. Provision is made in the articles of incorporation for additional directors.

The officers of the local company will be: George H. Mead, chairman of the board; C. R. Van de Carr, Jr., president; Sydney Ferguson, vice president; Allan W. Macbeth, vice president and treasurer; Millard Reese, secretary; E. Way Highsmith, assistant secretary.

Announcement by Mead Corp.

The following announcement was made by the company:

"The Mead Corporation is the outgrowth of a long-established and successful paper business founded over ninety years ago by Daniel E. Mead, and has since been continuously operated by the Mead family, now the third generation. At the present time the operating properties have a capacity of over 1,000 tons daily of magazine, book, coated and writing papers and paper boards. In its chemical division it is also the largest manufacturer in the country of chestnut tannic acid in the preparation of leather.

"The company proposes to erect a pulp mill at Brunswick with a capacity of 150 tons per day. It is hoped that this capacity will be substantially exceeded in the reasonably near future. The initial units, now being planned, however, will have a somewhat smaller capacity in order to permit the thorough testing of innovations in process and equipment."

"The output of the initial unit will to a large extent be purchased by the Mead Corporation, who now use substantial quantities of wood pulps being imported from Scandinavia and Canada. It is anticipated that the Brunswick pulp mill will gradually expand to produce more and more of this tonnage as processes are perfected for the production with the necessary characteristics."

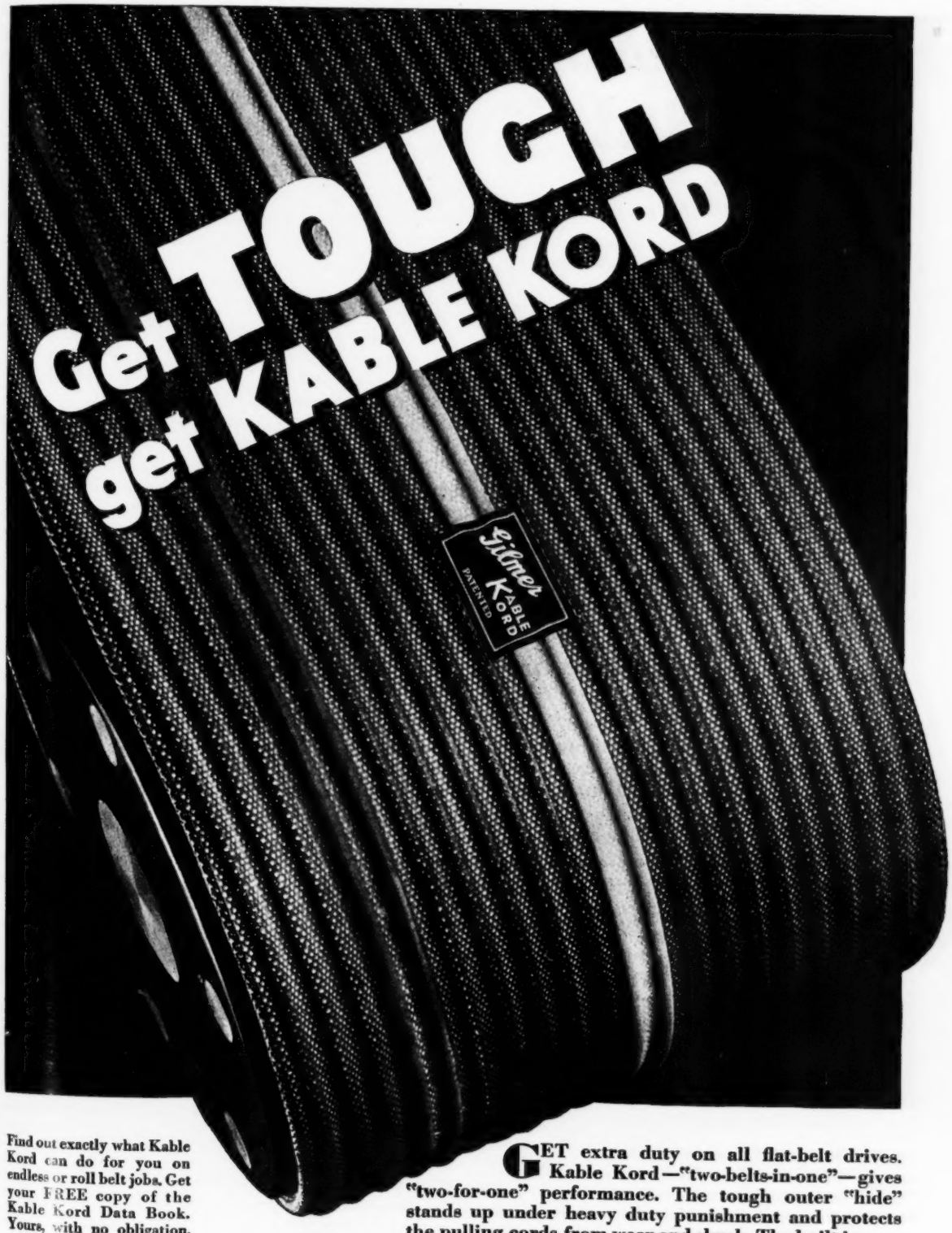
Argentine Prescribes Watermarks on Paper

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., October 7, 1936.—An Argentine executive decree published August 22, 1936 and to become effective 180 days thereafter, provides that paper, imported duty-free, for use exclusively for the printing of newspapers, periodicals, books or magazines of literary, scientific or general information, must bear clear marks, known as watermarks or filigrane, according to a report from Vice Consul Hayward G. Hill, Buenos Aires. These watermarks must be in the form of straight parallel lines, spaced 4 centimeters apart, within an allowable variation of ½ centimeter.

The decree prohibits the importation of paper bearing the described watermarks, except when the paper is for the above specified purposes only, and prohibits the manufacture, in the country, of paper bearing the watermark in question.

The decree further annuls the requirements for the duty-free entry of newsprint as provided for by a decree of July 18, 1935. For the duty-free entry of newsprint, the decree of July 18, 1935 provided that newsprint must have a specified proportion of chemical and mechanical pulp as well as having a specified weight per square meter.



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FUTURE MEETINGS

NEW ENGLAND SECTION, Technical Association of the Pulp and Paper Industry—Third Friday of each month at the Nonotuck Hotel, Holyoke, Mass.

DELAWARE VALLEY SECTION, Technical Association of the Pulp and Paper Industry—Fourth Friday of each month at the Engineers Club, Philadelphia, Pa.

LAKE STATES SECTION, Technical Association of the Pulp and Paper Industry—Second Tuesday of each month at the Conway, Hotel, Appleton, Wis.

KALAMAZOO VALLEY SECTION, Technical Association of the Pulp and Paper Industry—First Thursday of each month at the Park-American Hotel, Kalamazoo, Mich.

DOES UNIONISM REALLY BENEFIT AMERICAN LABOR?

The prevailing theory of higher hourly wage rates and restricted working hours does not operate to produce greater income or more employment for factory labor, say the two business economists, Allen W. Rucker and N. W. Pickering, in their latest study, "Does Unionism Really Benefit Labor?" The study has just been published by Farrel-Birmingham Company, Inc., and embraces twelve major non-durable goods industries accounting for almost two million factory wage-earners.

It has been widely assumed by union leaders, government officials, many economists and research organizations and especially by writers in the liberal press, that American labor benefits from the higher wage rates and shorter work week enforced by collective bargaining or organized trades unions. In support of that assumption, it is common practice to quote comparative hourly wage rates, working hours and weekly earnings in union and non-union industries—and to assume that higher wage rates automatically lead to increased purchasing power, while the restricted work week automatically compels increased employment.

These assumptions the authors assert, have never been proven; mere repetition rather than factual evidence has served to give them a wide acceptance. Such acceptance naturally has become the basis for public, labor and even industrial support of a variety of labor legislation; it has led to an attempted extension of the Federal Industrial Recovery Act, the Guffey Act, and the Walsh-Healy Act; it has encouraged political parties actively to support and the public to acquiesce in large-scale extension of unionization throughout industry.

If the *a priori* reasoning behind this trend away from the normal American System is correct—namely, that arbitrary enforcement of higher wage scales and restricted working hours, *per se*, lead to greater purchasing power and increased employment—then it would naturally follow the authors' point out that:

In any period of prosperity, such as 1923-1929, labor in unionized industries would enjoy higher annual incomes with greater prospect of increasing those incomes, purchasing power of incomes would be greater and security of employment more certain than in non-unionized industries;

And in any period of depression, such as 1929-1933, unionized industries would be better able to resist declines in incomes, purchasing power and employment than would non-unionized industries; while

In any period of recovery, such as 1933-1935, unionized industries would tend more rapidly to restore normal incomes, enlarged purchasing power and full employment than would non-unionized industries.

Have such results actually been realized?

It is popularly supposed that they have been, but the obviously logical process of determining if, in fact, such is the case has been curiously neglected. The plausibility of the theory of higher wage rates and shorter working hours has led generally it is stated to a begging of the conclusion—and a failure to determine whether or not the theory actually works out in practice.

Do higher wage rates and restricted working hours arising from union activities, rather than the normal operation of the competitive system, tend to increase annual incomes, purchasing power and employment opportunity, or do they not?

An examination of the end results in industry can answer that question and that is the only means by which it may properly be answered.

The official record of industrial operation is contained in the U. S. Census of Manufactures. In that record is reported biennially the twelve months actual result of operations in each industry as regards wages paid and employment given. If, over a representative period of years, labor has benefited from unionization, that benefit should be measurable from the end result. It not, the contrary fact should be equally as evident.

Approaching the matter from the practical factual standpoint, the authors have determined the average prosperity and depression experiences of labor as a whole in each of twelve major American industries.

These industries represent the major producers of consumption goods. These twelve industries account for 28.3 per cent of total factory employment, 26.5 per cent of the total annual wage disbursement of manufactures and 30.8 per cent of the total value of products made, according to the 1933 Census of Manufactures. Care was taken to in-

clude products in wide use by the entire population in both good times and depression periods, and to omit producers of products unduly affected by special conditions in either inflationary or deflationary periods.

The twelve industries are divided into two equal groups —six major industries employing largely labor represented by trades unions and six major industries in which the trades union is non-existent or a negligible factor.

All data regarding annual incomes per average worker, security of employment, opportunity and total distribution of purchasing power were taken directly from the biennial Census of Manufactures compiled by the U. S. Department of Commerce. The data cover the periods 1923 to 1929, 1929 to 1933 and 1933 to 1935, a total of thirteen years . . . a time sufficiently long to reflect the effect upon labor of conditions prevailing in unionized and non-unionized industries.

There is thus available it is stated for the first time a factual comparison of the end result in major industries operating under the two opposing systems of labor relations and the authors believe that the importance of the industries examined and the period of time included are sufficiently comprehensive to be strongly indicative, if not conclusive, of the relative values of the two systems to labor as a whole.

President Roberts Explains Bird Case

Contending that the issue in the case is of such character that it will probably clarify some of the doubtful provisions of the Robinson-Patman price control law as the alleged offense took place before the law went into effect, Benjamin H. Roberts, president of Bird & Son, Inc., has sent to the Federal Trade Commission an explanation of transactions which caused the commission to cite the old Massachusetts firm for violation of the act.

Bird & Son was one of five firms charged with selling goods at discriminatory prices and Montgomery Ward & Co. was charged with accepting unlawful discriminations. The Bird organization, which operates in East Walpole and which was established in 1795, is accused of selling through its subsidiary, the Bird Floor Covering Sales Corporation, certain goods to the mail order house at prices lower than other retail merchants could obtain.

In explanation, President Roberts issued the following statement over his signature:

"The Federal Trade Commission have issued several complaints alleging discrimination in price under the Robinson-Patman Act, including a complaint against the Bird Floor Covering Sales Corporation and Montgomery Ward Company, involving the prices made to Montgomery Ward Company for felt base floor covering products as compared with prices made by the Bird Floor Covering Sales Corporation to other merchants.

"The transaction involved in this case was made prior to the passage of the Robinson-Patman Act.

"Bird Floor Covering Sales Corporation feel that the transactions involved are not in violation of this law. However, notwithstanding the confusing provisions of this act, Bird Floor Covering Sales Corporation have exercised great vigilance in endeavoring to observe this law and avoid any controversy. The issue in the case is of such a character as to probably clarify some doubtful provisions of this law."

Production Ratio Report

The statistics are based upon paper production reports to the American Paper and Pulp Association.

COMPARATIVE MONTHLY SUMMARIES

Month	1936	1935	1934
January	76.1%	65.8%	.....
February	77.9%	70.0%	.....
March	76.0%	70.5%	.....
April	82.3%	70.0%	.....
May	81.6%	69.4%	.....
June	80.7%	72.3%	.....
July (b)	80.0%	67.8%	.....
August	81.6%	70.9%	.....
September (c)	.....	75.0%	59.4%
October	.....	75.6%	64.7%
November	.....	75.3%	61.7%
December (a)	.....	74.3%	62.1%
Year	.....	71.2%	.....

COMPARATIVE WEEKLY SUMMARIES

CURRENT WEEKS, 1936		CORRESPONDING WEEKS, 1935	
*September 5	81.3%	September 7 (c)	76.6%
*September 12 (c)	85.9%	September 14	72.7%
*September 19	86.0%	September 21	76.1%
*September 26	83.0%	September 28	74.9%

The following statistics show the number of mills reporting by ratio groups:

Ratio Limits	Number of Mills Reporting, Current Weeks: Sept. 5, 1936	Sept. 12, 1936	Sept. 19, 1936	Sept. 26, 1935
0% to 50%	83	80	59	49
51% to 100%	249	249	253	198
Total Mills Reporting	332	329	312	247

* Subject to revision until all reports are received.
These data exclude (a)—Christmas Day, (b)—Fourth of July, (c)—Labor Day.

PAPERBOARD OPERATING RATIOS

According to reports from the National Paperboard Association, per cents of operation, based on "Inch-Hours", were as follows:

Month	1936	1935	1934	Month	1936	1935	1934
January	61%	61%	....	July	69%	59%	....
February	67%	67%	....	August	75%	65%	....
March	68%	67%	....	September	....	69%	62%
April	70%	61%	....	October	....	76%	63%
May	68%	61%	....	November	....	70%	56%
June	68%	65%	....	December	....	60%	(a)53%

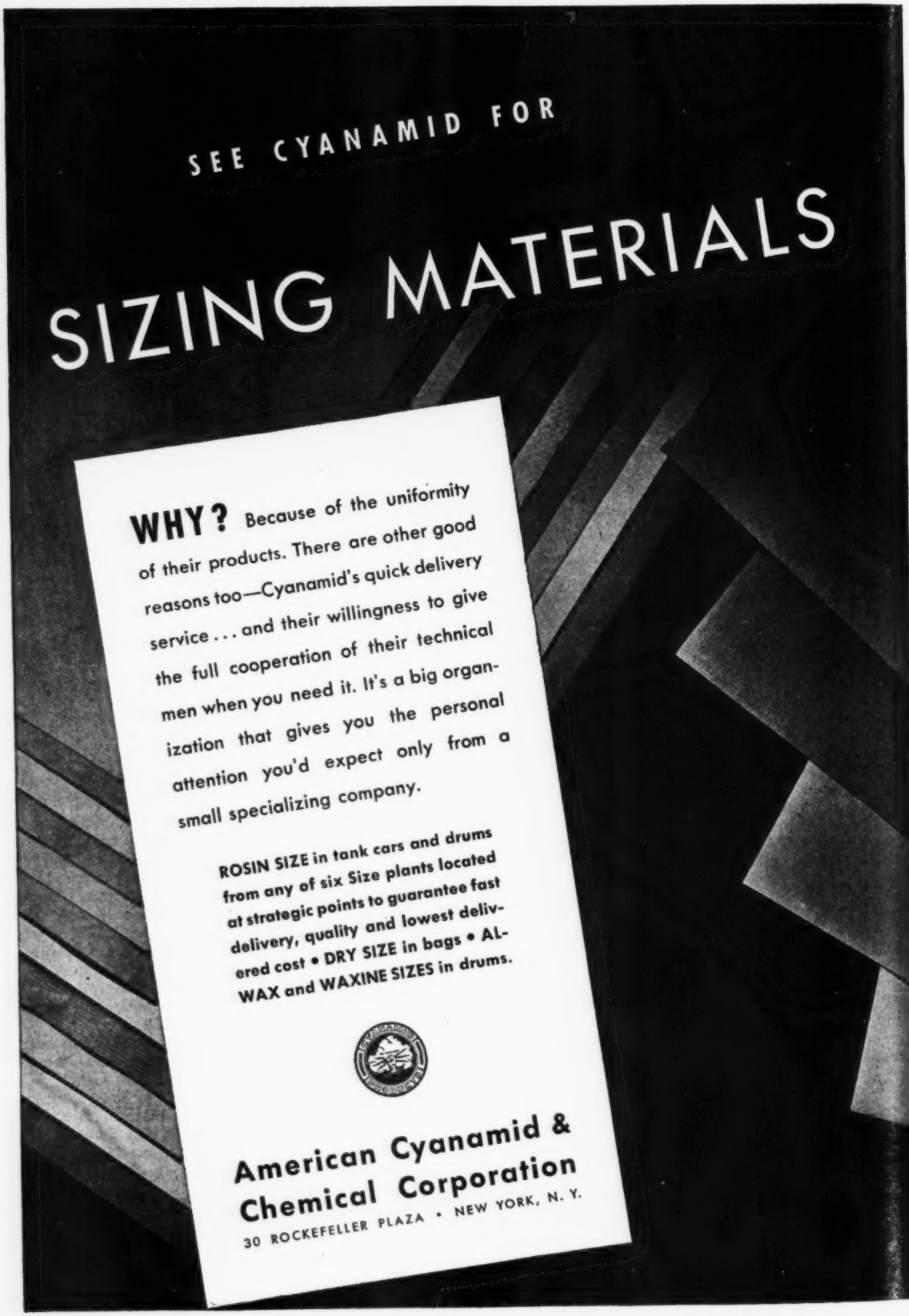
Week ending Sept. 5, 1936—78%
Week ending Sept. 12, 1936—66%
Week ending Sept. 19, 1936—81%
Week ending Sept. 26, 1936—82%

Heads United Wall Paper Factories

Hadar Ortman, for the last two years head of the W. F. Hall Printing Company of Chicago and for six years previously director of operations and finance of the Meredith Publishing Company, assumed office October 1 as president of the United Wall Paper Factories, Incorporated, largest wall paper concern in the country. At the same time, Rudolf Neuburger, former assistant to the president, who resigned as an executive of Atlas Powder Company last June, will take office as vice president and chairman of the executive committee. A. F. Kletzien, formerly secretary and controller of Fox River Paper Company, Appleton, Wis., becomes treasurer and controller.

New directors of United are Mr. Ortman, Mr. Neuburger and C. H. Sage. Other directors, reelected at the annual meeting at Wilmington, Del., are R. B. Griffin, who continues as vice president in charge of design; J. M. Barker, J. S. McCoy, who retains the office of vice president which he has held for many years; E. J. Pollock, F. J. Sensenbrenner, Karl Panthen, William Shand, W. A. Huppuch, C. W. Kellogg, J. C. Eisenhart, and A. R. Palmer. Mr. Palmer continues as general counsel.

The company is consolidating its executive offices at Chicago. Plants are located in Jersey City, York, Pa., Joliet, Ill., and Appleton, Wis. Subsidiaries operate in England and Canada.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Section of the
Technical Association of the Pulp and Paper Industry
Edited by Ronald G. Macdonald, Secretary

Paper Pulp from Cereal Straws by a Modified Sulphate Process*

By Baker Wingfield, E. R. Whittemore, C. B. Overman, O. R. Sweeney, and S. F. Acree[1]

Abstract

A modified sulphate process is outlined for the conversion of oat, rye, and wheat straws to pulps which would be suitable for the production of typewriter, book, and other grades of paper. The variables in digesting, beating, screening, and bleaching were investigated separately for the optimum conditions. Pulps of the above grades were produced in large laboratory equipment. Test sheets from these pulps showed a yield of 38 to 43 per cent of dry weight of raw material for wheat straw; 42 to 46 per cent for rye straw; and 40 to 45 per cent for oat straw.

The total production of wheat, oat, and rye straw in the United States during 1931, assuming a low yield value of three-quarters of a ton per acre and using the figures for acreage in production given in the 1932 Yearbook of Agriculture, was 84,621,000 tons, of which 60,039,000 tons was produced in the North Central area and Oklahoma and Texas. The distribution of tonnage in the latter figure was 48.5 per cent of wheat, 46.6 per cent of oat, and 4.9 per cent of rye. Approximately 25,000,000 tons of paper could be produced from the straw grown in this central area of the United States. This is more than twice the quantity of paper now consumed annually in this country.

Straw is composed of cellulose, lignin, pentosans, and small amounts of other materials. The presence of a large amount of cellulose fibers in straws first suggested their use as a raw material for the manufacture of paper pulp. They have been employed from time to time in this country for the production of paper, but recent economic causes have limited such use. Approximately 600,000 tons is used annually for (*1*) the making of strawboard and egg-case paper. In other countries such as Argentine and Chile, the Pomilio (*2*) process is being successfully used for converting straw into high-quality papers. In certain European countries other processes have been adopted to some extent. Chlorination processes, such as Pomilio's (*3*) Traquair's (*4*) (Mead Co.) and others, are patented. These all require chlorine and caustic, which are not available at sufficiently low prices in the Straw Belt of the United States at present; consequently, these processes were eliminated as possibilities in this study. Of the other methods in general use in the paper industry—the soda, sulphate, and sulphite—the sulphate process was chosen because a good yield of strong pulp can be obtained by its use. The initial experimental work made it apparent that in most respects commercial pulping conditions for wood are too drastic for straw. The factors in each process step were therefore investigated systematically. The plan was to develop on a large laboratory scale a process specifically suited to the production of a high yield of strong pulp from straw, and to define this process within fairly narrow limits.

Equipment Used

Digester A, Fig. 1, was a 15-gallon insulated steel shell, arranged for indirect heating by means of a steam jacket surrounding the sides and bottom, with a thermo-siphon, B, connecting at the top and bottom of the shell. It was fitted wih a charging hole at the top and a sieved discharge at the bottom. Expansion chamber C, Fig. 1, fitted with a combination bleeder and blow-off line, was connected with the cover of the charging hole.

Beating engine A, shown in Fig. 2, was a 12-pound hollander type. The tub and roll were iron and the adjustable roll turned above a fixed V-bar bedplate. Both roll and bedplate were wood filled.

Screening apparatus B, in Fig. 2, was of the hinged, jig type, built around a typical 1- by 4-ft commercial bronze screen plate, machined with 0.004 in. slots. The stock compartment extended 18 in. above the plate and the enclosed space was fitted with gear-driven, bent brass stirring rods.

Purifier C, Fig. 2, was a rotating basket with solid walls, open at the top and fitted with several concentric retaining baffles on its inside periphery. It was 8 in. in diameter and 6 in. deep and was mounted in a steel shell. The basket revolved at 350 rpm and had a capacity of 2 to 3 gallons of liquid per minute.

Pulp concentrator D, in Fig. 2, was similar to a trommel type of creen. It consisted of a double-wire cylinder, No. 80 screen inside, reinforced with No. 30 screen on the outside, 4 ft. long, and 11 in. in diameter. Two baffles were mounted on the inside surface in the form of screws. The cylinder was pitched 0.5 in. per ft. downward toward the discharge end and rotated at 15 rpm.

The jordan E, in Fig. 2, was of the standard type, 18 in. long, 8 in. in diameter at the inlet, and 11 in. in diameter at the discharge end. It operated at 400 rpm.

* National Bureau of Standards Miscellaneous Publication M124.
[1] Bureau of Standards, Iowa State College, Ames, Iowa.

The sheet forming apparatus consisted of four parts; the mold, the sheet frame, the grid, and the suction box. The mold and the suction box were each 9 by 12 by 4¾ in. cypress boxes. The grid forming the top surface of the suction box was a perforated brass plate faced with no. 30 bronze screen. The sheet frame consisted of two hollow frames with 9 by 12 in. openings between which were clamped a No. 80 screen and a No. 30 reinforcing screen.

The hydraulic press was a diaphragm type with 9 by 12 in. bronze-faced platens. The press was equipped with a hand-operated hydraulic pump capable of producing a pressure of 200 lb per sq. in. on the plates.

The drying roll was a hand-operated, steam-heated drier with a surface of polished, nickel-plated steel, which was 12.5 in. in diameter and 16 in. in length. The drier felt was heavy canvas wrapping around three-quarters of the roll.

The testing equipment consisted of an M.I.T. folding tester, the usual tensile machine, and a Mullen burst tester. All physical testing was done at Iowa State College in a room maintained at 70 deg. F. and 70-per cent relative humidity.

Experimental Procedure

Many factors influence the preparation of paper pulp from any raw material. In this study, the effects of varying each factor discussed below were determined with the other conditions constant. These results made it possible to establish a fairly specific range of conditions for the process.

1. Mechanical Pretreatment

In the manufacture of paper from straw abroad it is common practice to shred the straw before chemical treatment to facilitate the loading and blowing of the digesters and, in general, the handling of the material. However, since the design of the digester used in this work was such that the cooked pulp was more easily washed in the digester, and more easily removed if whole straw was used, the stalks were used directly from air dry bales.

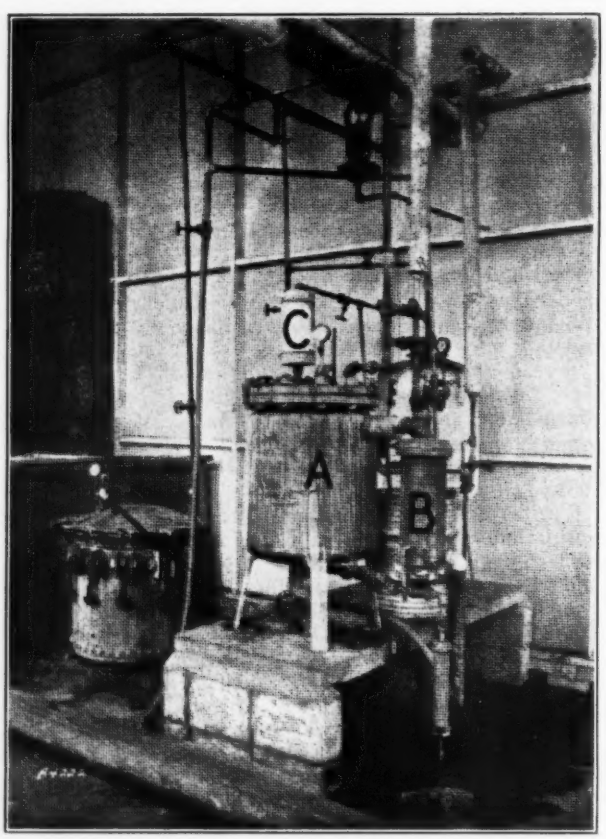

Fig. 1

Digester equipment. A, digester; B, thermo-siphon; C, expansion chamber.

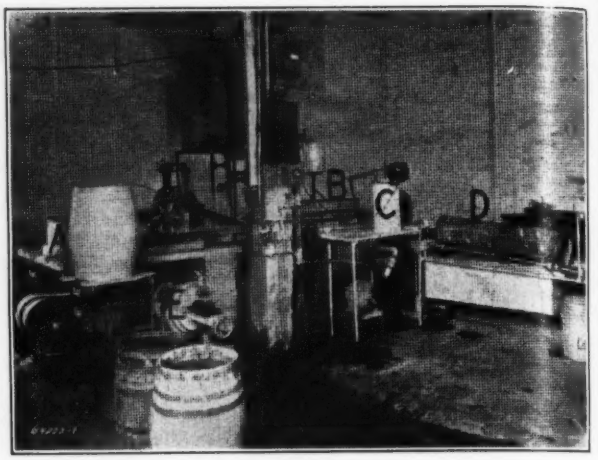

Fig. 2

Pulping and screening equipment. A, beater; B, screen; C, purifier; D, concentrator; E, jordan.

2. Presteep

It was found that a preliminary treatment of the raw straw with hot water greatly improved the color of the cooked straw and decreased the amount of chemical needed in digesting and bleaching. Steeping at atmospheric pressure was found to be practically as effective as pressure steeping in its results, though it removed slightly less material than could be dissolved at higher pressures. This pretreatment lowered the amount of chlorine necessary for bleaching by 2 per cent.

4. Washing

It was found that poor yields were obtained when the pulp was washed in the beater through the medium of a rotary washer covered with a no. 80 screen. Recovery of fiber from the wash water by filtering indicated that the poor yields were caused by loss of fines through the washer wire. A method of washing the pulp in the cooker was adopted. This was accomplished by using four to five batches of hot water to take advantage of the bleaching action, or a continued washing with hot water for 10 to 15 minutes. When this was combined with three-stage bleaching and circulated screening, the yields were increased to over 40 per cent.

5. Beating

(*a*) *Mechanical Fiber Treatment*

A series of beating trials was made of pulps cooked at 50- or 65-lb. pressure with 3 per cent of sodium sulphide and 7 per cent of caustic soda. The method was to feed the pulp into the beater with the roll raised to a 0.07-in. clearance until circulation was established at the desired consistency. The roll was then lowered to 0.0285-in. clearance. At definite intervals this clearance was reduced in steps to a minimum of 0.00285 in. The results indicated that after 90 min. the strength remained practically consistant and that further beating was unnecessary.

(*b*) *Mechanical Fiber Treatment Combined with Partial Bleaching*

To investigate multi-stage bleaching and recovery of fines,

a series of experiments was made in which the cooked and washed pulps were beaten and partially bleached simultaneously. Two-fifths of the total bleach required was added at the start of the 90-min. beating period. The pulp was then allowed to stand for 2½ to 3 hours, before screening, to utilize the chlorine completely. The high dilution necessary for screening, together with the subsequent concentration for further bleaching, were attained by washing and draining between the bleaching stages. Further advantages of this method were a reduction in the amount of tailings and a consequent increase in the rate of screening, increased recovery of fines owing to their precipitation from a suspended state by the action of the bleach, and a resultant shortening of the processing time.

6. Screening and Screen Operation

The usual commercial papermaking screens for the removal of undisintegrated fiber bundles and other objectionable material have slots that vary from 0.008 to 0.015 in., according to the grade of pulp desired, and have a production rate of from 21 to 30 pounds of oven-dry pulp per hour per plate (*5*). Straw pulp requires small slots to remove the objectionable material. Screens having 0.004-in. slots were investigated and found to be satisfactory. The use of these narrow screen slots required modifications in the usual methods of screening to obtain satisfactory production. Neil (*6*) investigated the modified method and determined the following optimum conditions for factors which affect the rate of screening: (1) Rate of agitation above the plate, 325 rpm; (2) amplitude, 1 to 1.5 in., and rate of vibration of the jig, 800 rpm; (3) consistency of the stock, 0.3 to 0.5 per cent; (4) difference in head on the screen, 28 to 30 in.; and (5) the concentration of tailings in the stock above the plate, 0.3 to 0.5 lb. of tailings allowed to accumulate and 15 min. taken for cleaning. Observing these conditions, screening rates of 26 to 33 pounds per hour can be attained, which is comparable to wood-pulp screening and shows the advantage of improved screen control.

The dilute pulp suspension from the screen was passed through a centrifugal separator, described previously. This operation aided greatly in removing the denser impurities from the pulp. The separator removed material which amounted to 1.0 to 2.0 per cent of the over-dry straw and contained 30 to 60 per cent of ash.

7. Concentrating

The dilute pulp suspension from the screen and separator had to be concentrated in order to bleach the pulp efficiently. The continuous concentrator described previously proved to be very satisfactory for this purpose. The machine, with moderately free pulp, will concentrate from 0.5 per cent consistency to 5 to 7 per cent consistency at the rate of 5 to 6 pounds of oven-dry material per hour. It has the advantage of rapid and efficient concentration of pulp with low initial cost and low power consumption.

8. Bleaching

Recent trends in pulp bleaching have been toward multistage or countercurrent methods, for the reason that the action of concentrated chlorine solutions has a decided weakening effect on the fibers, and also because the use of successive stages of bleaching reduces the time of treatment and the amount of chlorine necessary to produce a white fiber.

The effect of single-stage and multistage bleaching was determined (*7*) for wheat-straw pulp made by a 3-hr. 50-lb. pressure cook, with 7 per cent of caustic soda and 3 per cent of sodium sulphide. The bleaching was accomplished in quart jars, using 20- to 25-gram samples at approximately 3 per cent consistency. The samples were mixed with chlorine as sodium hypochlorite and allowed to stand for varying lengths of time, after which the liquor was drained off. The active chlorine content of the liquor was determined by titrating an aliquot portion with sodium thiosulphate in the presence of potassium iodide and acetic acid. The treated pulps were then washed clean with cold water, and made into sheets of approximately 42 lb. per ream.

White pulp could be obtained in single-stage bleaching only when the bleaching agent was present in decided excess: 17 to 23 per cent active chlorine based on the weight of the pulp. Poor yields were obtained by this method and the paper had poor strength, particularly folding endurance.

Two-stage bleaching decreased the amount of bleach necessary to produce a white pulp without the large losses in yield and in strength. Table V shows results typical of those obtained in this study.

While applying two-stage bleaching to larger scale experiments, it was observed that a loss of fine material could be minimized by addition of the bleach solution before washing or screening the beaten pulp. To take advantage of this, a three-stage bleaching process was evolved. Four per cent of chlorine, based on the weight of the crude pulp (which was taken as one-half of the original raw material), was used for the first bleaching stage and was added during the beating process. This low percentage was used in order to reduce further the deleterious effect of the strong chlorine and not to waste the bleach on the coarse material which would later be screened out as tailings. After screening, centrifugal cleaning and concentrating, the pulp, diluted to 2- to 3-per cent consistency, was again returned to the beater, where an additional 4 per cent of chlorine was added and thoroughly mixed into the pulp. Sixteen hours was allowed for the action of this second stage of bleaching. Two per cent of chlorine was then added and mixed with the pulp and allowed to act for 24 hours. The bleach pulp was washed on flat, no. 80 screens until the wash water was clean and gave no color with phenolphthalein.

3. Chemical Cooks

The cooking of cellulosic materials for the preparation of paper pulp is one of the most important phases of the process. In this step, varying any of the number of factors, will affect the product. These factors are: pressure and temperature, the duration of cooking, the ratio of material to water, the total amount and concentration of chemicals, and in the sulphate cook, the proportion of sodium sulphide to sodium hydroxide. The best conditions for these factors are given in the following sections, with the exception of the straw-to-water ratio, which is the maximum for the digester used—1 part of straw to 9 parts of water, by weight. Twelve pounds of air-dried straw was about the maximum amount which could be conveniently charged into the digester, and this weight was used throughout the work. 108 pounds of water was required to cover the material and prevent undercooking at the surface.

(a) Pressure and Time Studies

Experiments were conducted with wheat straw at gage pressures of 35, 50, 65, and 85 lb. per sq. in. with variations in cooking period of 1, 2, 3, 5, and 7 hours, using 10 per cent of total chemical based on the air-dried straw, in the ratio of 3 parts of sodium sulphide to 7 parts of caustic soda, by weight, in each case. Each run was followed by 90 min. of beating, circulated screening, and two-stage bleaching. The results are given in Table 1.

It may be seen that all the high-pressure cooks yielded pulps with poor bleaching quality, and that excessive cooking time was required for good bleaching quality in low-pressure cooking. From a consideration of the strength and bleaching quality of the pulps, and the time and steam requirements for different cooks, it appeared that 50-lb. pressure for 3 hours was optimum.

(b) Chemical Concentration and Interchemical Ratio

The three straws—wheat, oat, and rye—were studied throughout a range of chemical concentrations and interchemical ratios, cooking 3 hours under 50 lb. pressure and using uniform practice in steeping, beating, screening, and bleaching. The results are tabulated in Tables II, III and IV.

Bearing in mind the fact that pulps cooked with 3 per cent of sodium sulphide had poor bleaching quality, unless at least 11 per cent of caustic was also used, the tables indicate that the best results were obtained by the use of 2 per cent of sulphide with 9 to 10 per cent of caustic on oat straw; 1 to 2 per cent of sulphide with 9 to 10 per cent of caustic on raw straw; and 1 to 2 per cent of sulphide with 8 to 10 per cent of caustic on wheat straw.

Of the pulps from the three straws, that from oat straw was the strongest, but most difficult to bleach; that from rye straw was easiest to bleach, but brittle; while wheat straw was about intermediate between these two with respect to bleaching and strength.

TABLE I
EFFECT OF PRESSURE AND DURATION OF COOKING ON THE YIELD, STRENGTH, AND BLEACHING QUALITY OF PULP MADE FROM WHEAT STRAW DIGESTED WITH 3 PER CENT OF SODIUM SULPHIDE AND 7 PER CENT OF CAUSTIC SODA

	Digestion		Properties of hand sheets					
Run	Gage pressure	Time	Weight [1]	Bursting strength [2]	Folding endurance [3]	Tensile breaking load [4]	Yield: weight of paper × 100 ÷ weight of straw	Bleaching quality
	lb	hr	lb	Points	Double folds	kg	%	
120.....	35	3	48.1	43	1,200	6.7	45.2	Fair.
121.....	35	5	44.5	42	1,200	6.6	45.3	Good.
122.....	35	7	47.0	33	1,000	6.9	44.0	Do.
20.....	50	1	47.3	39	360	6.3	31.0	Fair.
125.....	50	3	44.1	42	930	6.3	41.7	Good.
92.....	50	5	49.6	40	780	6.4	44.4	Do.
107.....	65	1	47.6	41	790	6.0	41.8	Good.
106.....	65	2	50.6	47	990	6.5	42.1	Do.
101.....	65	3	52.5	46	1,300	6.6	44.4	Fair.
110.....	85	1	51.1	47	1,300	6.7	44.6	Fair.
104.....	85	2	44.0	40	920	6.4	44.2	Very poor.
102.....	85	3	53.6	50	1,600	6.6	36.8	Do.

[1] The figures given are typical and represent the weight of 500 sheets, 25- by 40-in.
[2] Bursting pressure, in pounds per square inch, through a circular orifice of 1.2 in. diameter.
[3] For test specimens 19 mm. wide and 90 mm. between jaws.
[4] For test specimens 15 mm. wide and 90 mm. between jaws.

TABLE II
PHYSICAL PROPERTIES AND YIELDS OF PULP FROM OAT STRAW COOKED WITH DIFFERENT PERCENTAGES OF CHEMICALS

	Properties of hand sheets					Chemical	
Run	Weight [1]	Bursting strength [2]	Folding endurance [3]	Tensile breaking load [4]	Yield: weight of paper × 100 ÷ weight of straw	Sodium sulphide	sodium hydroxide
	lb	Points	Double folds	kg	%	%	%
34.....	57.1	71	970	8.9	41.0	1	8
25.....	58.8	70	1,200	8.9	42.2	1	9
35.....	54.6	62	1,000	8.7	40.1	1	10
36.....	54.8	69	1,300	8.4	45.1	1	11
21 to 23	56.2	78	1,400	9.6	46.3	2	8
22.....	57.0	70	1,700	8.5	45.4	2	9
24.....	59.6	80	1,100	11.2	41.4	2	10
26.....	57.7	78	1,600	9.5	43.7	2	11
9.....	57.1	78	2,100	8.8	50.2	3	6
10.....	59.2	88	2,000	10.2	47.1	3	7
11.....	55.9	67	1,500	9.1	44.5	3	8
12.....	58.0	77	1,800	10.2	47.1	3	9
13.....	54.3	64	980	7.6	42.6	3	10
14.....	56.4	65	870	8.0	44.2	3	11

[1] The figures given are typical and represent the weight of 500 sheets 25- by 40-inch.
[2] Bursting pressure, in pounds per square inch, through a circular orifice of 1.2 in. diameter.
[3] For test specimens 19 mm. wide and 90 mm. between jaws.
[4] For test specimens 15 mm. wide and 90 mm. between jaws.

TABLE III
PHYSICAL PROPERTIES AND YIELDS OF PULP FROM RYE STRAW COOKED WITH DIFFERENT PERCENTAGES OF CHEMICALS

	Properties of hand sheets					Chemical	
Run	Weight [1]	Bursting strength [2]	Folding endurance [3]	Tensile breaking load [4]	Yield: weight of paper × 100 ÷ weight of straw	Sodium sulphide	sodium hydroxide
	lb	Points	Double folds	kg	%	%	%
39.....	57.9	66	340	9.8	44.0	1	9
40.....	54.4	62	360	8.4	41.8	1	10
41.....	53.5	59	440	8.0	35.4	1	11
28.....	56.6	66	1,000	8.6	44.1	2	8
30.....	59.7	61	260	9.8	46.1	2	9
37.....	54.0	60	290	8.1	42.3	2	10
38.....	55.5	58	250	9.3	42.3	2	11
15.....	57.8	56	1,100	8.7	47.2	3	6
16.....	58.3	56	780	7.6	48.0	3	7
17.....	62.4	69	850	9.9	48.9	3	8
18.....	56.3	45	230	7.8	43.4	3	9
19.....	59.7	53	840	8.1	45.8	3	10
20.....	58.0	55	550	8.9	44.7	3	11

[1] The figures given are typical and represent the weight of 500 sheets 25- by 40-inch.
[2] Bursting pressure, in pounds per square inch, through a circular orifice of 1.2 in. diameter.
[3] For test specimens 19 mm. wide and 90 mm. between jaws.
[4] For test specimens 15 mm. wide and 90 mm. between jaws.

TABLE IV
PHYSICAL PROPERTIES AND YIELDS OF PULP FROM WHEAT STRAW COOKED WITH DIFFERENT PERCENTAGES OF CHEMICALS

	Properties of hand sheets					Chemical	
Run	Weight [1]	Bursting strength [2]	Folding endurance [3]	Tensile breaking load [4]	Yield: weight of paper × 100 ÷ weight of straw	sodium sulphide	sodium hydroxide
	lb	Points	Double folds	kg	%	%	%
f	59.6	58	1,200	6.9	41	1	8
i	50.8	46	910	6.7	37	1	9
b	57.9	51	780	6.8	38	1	10
a	61.8	59	410	6.4	35	1	11
h	51.6	47	670	6.7	40	2	8
e	58.8	56	790	7.4	40	2	9
d	65.0	62	740	8.6	39	2	10
c	59.1	64	660	7.1	41	2	11
j	47.4	42	640	6.4	42	3	7
k	45.4	40	580	6.2	41	3	8
l	49.7	41	610	6.8	39	3	9
m	47.3	37	510	6.5	38	3	10

[1] The figures given are typical and represent the weight of 500 sheets 25- by 40-inch.
[2] Bursting pressure, in pounds per square inch, through a circular orifice of 1.2 in. diameter.
[3] For test specimens 19 mm. wide and 90 mm. between jaws.
[4] For test specimens 15 mm. wide and 90 mm. between jaws.

9. Formation

The bleached and washed pulp was passed through the jordan at approximately 0.7 per cent consistency, with the jordan plug set to give a light brushing action. This treatment was sufficient to float the fibers and insure good felting properties.

The jordaned pulp was diluted with water to a consistency of 0.6 per cent. The suction box and mold were filled with water. Two-pound samples of the diluted pulp were poured into the mold and evenly distributed by hand.

The water was removed by suction and the fibers allowed to mat on the 80 screen of the sheet frame. Suction was maintained for about 1 min. after the visible water was removed. The sheet frame containing the felted fibers was removed and a piece of 12-oz. canvas was stretched over the screen-covered grid. The sheet frame was then inverted over the grid, suction applied, and the wet sheet transferred to the canvas. The canvas backings and sheets were placed in a hydraulic press between felts and pressed for about 3 min. at 200 lb. per sq. in. The pressed wet sheets were then removed from the press, stripped from the canvas, and dried on the roll drier at slightly over 100 deg. C.

10. Testing

The physical tests were made on samples from hand sheets. At least 10 samples, which had been conditioned for a minimum of 2 hours at 70 deg. F. and a relative humidity of 70 per cent, were used for each test. Samples for test were taken from several hand sheets as follows: Mullen, 10 to 12 squares, 10 by 10 cm.; tensile, 10 to 12 strips, 19 by 175 mm.; folding, 10 to 12 strips, 15 by 135 mm. The weight per ream was determined from the weight of the conditioned Mullen test samples.

IV. Discussion and Comparison of the Process with Wood Processes

Any attempt to give practical cost data on small-scale work would be, at best, only a rough approximation. The process in general, as outlined in this paper, made use of no new types of equipment, and the treatment was in accordance with established practice. Hence, amounts, yields, and time comparisons are of more significance than cost approximations derived from small-scale work. Such comparisons are given in Table VI.

The comparative data, as tabulated from authoritative sources shows that straw pulp in many cases has advantages over wood; and some apparent disadvantages, the most noticeable of these being the relative amount of bleach required for straw in comparison with wood. It should be mentioned here that no attempts were made to bleach at a high consistency or at the increased temperatures which are in general practice in commercial plants, neither was there a comparison made with small-scale wood-pulp bleaching under identical conditions. The application of commercial bleaching methods and equipment to straw pulp would probably materially decrease the time of bleaching and bleach consumption and may affect yields as tabulated.

TABLE V
PROPERTIES OF WHEAT-STRAW PULP BLEACHED IN TWO STAGES

Ratio of Cl added in 1st to that added in the 2d stage	Time of treatment, in stages		Total Cl added × 100 ÷ bone-dry pulp	Cl remaining × 100 ÷ bone-dry pulp	Yield of bleached pulp	Properties of hand sheets: Weight [1]	Bursting strength [2]	Tensile breaking load [3]	Folding endurance [4]	Color
	1st hr	2d hr	%	%	%	lb	Points	kg	Double folds	
1:1....	8	32	11.36	0.44	90.5	41.7	32	6.4	720	Good.
7:5....	8	32	11.36	.46	92.7	41.9	32	6.3	470	Do.
8:5....	8	32	11.36	.65	89.7	41.8	31	6.0	420	Do.
9:5....	8	32	11.36	.67	88.7	37.3	26	5.5	430	Do.
2:1....	8	32	7.71	.04	96.7	40.6	28	6.2	560	Poor.
2:1....	8	32	8.52	.12	86.3	38.3	29	5.7	800	Fair.
2:1....	8	32	9.96	.39	....	38.8	29	5.9	600	Good.
2:1....	8	32	11.37	.43	84.3	38.2	26	4.2	320	Do.
2:1....	8	32	12.81	.60	86.3	38.3	25	5.6	530	Do.

[1] The figures given are typical and represent the weight of 500 sheets 25- by 40-inch.
[2] Bursting pressure, in pounds per square inch, through a circular orifice of 1.2 in. diameter.
[3] For test specimens 19 mm. wide and 90 mm. between jaws.
[4] For test specimens 15 mm. wide and 90 mm. between jaws.

TABLE VI
COMPARISON OF THE SULPHATE PROCESS FOR STRAW PULP WITH STANDARD WOOD PROCESSES

Treatment	Sulphate process on straws	Sulphate process on wood	Soda process on wood	Sulphite process on wood
Amount (in tons) of bone-dry cellulosic material required per ton of pulp	2.2 to 2.6	2.1 to 2.5[a]; 2.8 to 3.4[b]	2.5 to 2.6[a]; 2.3 to 3.6[b]	2.0 to 2.7[b]
Total chemical (per cent) for cooking based on the bone-dry raw material.	11.8 to 12.9	30 to 33[a] [c]; 16 to 17[b]	21 to 25[a] [c]	9.4 to 15[a] (as SO_2).
Time (hours) of cooking	4	4 to 5[a] [c]; 1.5 to 6[b]	4 to 5[a]; 4 to 6[b]	8 or less[a]; 20 to 30[a] [c]; 10.5 to 14.5[b].
Maximum temperature (deg. C.) of cook	147	170 to 181[b]	121[a]	125 to 160[a]; 120[b].
Yield (per cent) of the unbleached pulp	45 to 50		38 to 40[a]; 28 to 44[b].	37 to 50[b].
Bleach (per cent), as bleaching powder, required.	27		8 to 30+[a]; 8 to 13[a] [c]; 8.4[b].	16 to 24[a]; 10 to 14[b] [c].
Yield (per cent) of bleached pulp	36 to 46		26.6 to 41.8[d]	35.2 to 47.5[d].

[a] Manufacture of Pulp and Paper, TAPPI, 3 (McGraw-Hill Book Co., 1927).
[b] Sutermeister, Chemistry of Pulp and Paper Making, 2d ed. (John Wiley and Sons, 1929).
[c] Easy bleaching.
[d] Assuming a 5 per cent loss during bleaching.

The capacity of a digester unit is low for straw in comparison with wood. Sutermeister gives the capacity of digesters at 4.445 (*8*) lb. of wood pulp per cubic foot of digester space. The digester used in this experimental work produced 3.05 lb. of straw pulp per cubic foot of digester space. The duration of the digestion must also be considered. Assuming a charging and discharging time of 1.5 hours, the capacity per cubic foot per hour for sulphate wood pulp is 1.48 to 0.59 lb., for soda pulp is 1.27 to 0.59 lb., for sulphite pulp is 0.56 to 0.17 lb., and for sulphate straw pulp is 0.55 lb. Modifications in digester design and methods of packing straw into the digester would materially increase straw-pulp capacity.

The amount of dirt in straws varies considerably with the method of gathering, bailing, and storing, and with the weather conditions when the straw is gathered and baled. Some experimental work has been done on washing the straw with cold water previous to the water steeping. Prewashing removes the dirt almost entirely and greatly increases the effectiveness of the cooking and bleaching and improves the quality of the pulp produced. This effect is apparently due to the removal of water-soluble materials which, when present, hinder the chemical processes. Prewashing could very well be combined with shredding, thereby lowering the cost. The wet shredding process would eliminate the fines produced in the day shredding operation.

Summary and Conclusions

1. Experimental work has shown that a strong bleached pulp can be produced from straws by using a modified sulphate process by the following procedure:

Water presteep at 100 deg. C. for 1 hour.

Chemical cook at 147 deg. C. for 3 hours with 1 to 2 per cent of Na_2S and 9 to 10 per cent of NaOH.

Wash.

Beating 90 min. with 4 per cent of chlorine added and allowing the stock to stand for 4 hours.

Screening through 0.004-in. slots and centrifugal cleaning.

Concentrating for further bleaching.

Final bleaching with 4 per cent of chlorine for 16 hours and 2 per cent additional for 24 hours.

Washing to remove excess chlorine.

Jordaning.

Paper formation.

2. Yields of 38 to 43 per cent of strong, bleached pulp from wheat straw; 42 to 46 per cent from rye straw; and 40 to 45 per cent from oat straw, have been obtained.

3. Various grades of pulp can be produced by changing the amounts of the chemicals in the digestion process. Yields of 45 to 55 per cent of unbleached pulps can be obtained.

Acknowledgement

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VI. Literature Cited

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TAPPI Pacific Section Plans

Following are the meetings planned by the Pacific Section of the Technical Association of the Pulp and Paper Industry:

October 6, 1936—Everett Yacht Club, Everett, Wash. The speaker will be F. L. La Que of the Research Division of the International Nickel Company, New York.

Nov. 6 and 7, 1936—Fall Meeting of the Section at the Multnomah Hotel, Portland, Ore.

Jan. 26, 1937—Portland, Ore.

Feb. 3, 1937—Vancouver, B. C.

March 3, 1937—Olympia, Wash.

April 6, 1937—Port Angeles, Wash.

Are you planning to visit the Pacific Coast at any time and would be interested in presenting papers or otherwise participating in the meetings please notify R. G. Macdonald, 122 East 42nd street, New York, N. Y., who will be glad to inform the officers of the Pacific Section.

General Electric Orders Increase

Orders received by the General Electric Company during the third quarter of 1936 amounted to $74,922,441, compared with $54,400,819 during the third quarter of 1935, an increase of 38 per cent, it was announced today by President Gerard Swope.

Orders received during the nine months amounted to $211,891,038, compared with $158,943,765 during the nine months last year, an increase of 33 per cent.

Orders received during the third quarter and first nine months of this year were larger than for any respective period since 1930.

Tappi Kalamazoo Valley Section to Meet

The Kalamazoo Valley Section of the Technical Association of the Pulp and Paper Industry will hold its next meeting October 15th, at the Community House of the Kalamazoo Vegetable Parchment Company, at 7:30 P. M.

Mr. G. M. Markle, of E. I. duPont de Nemours & Co., Inc., will speak on "Dyestuffs and Coloring."

Those desiring to do so may visit the mill and the remodeled laboratory after the meeting.

Handbook of Engineering Fundamentals

This book by O. W. Eshbach, and for the contributors is the first volume in the proposed new Wiley Engineering Handbook series which represents a complete revision of the basic conception of American handbooks. Since mathematics, physics and chemistry form the basis of all engineering, these are the fields dealt with in the new volume. "Eshbach" is designed to present in one compact volume a complete summary of the facts pertaining to the fundamental theory underlying engineering practice.

The first section presents a selection of mathematical and physical tables, including new and revised tables of the American Handbook series, in which particular attention has been given to arrangement, typography and general convenience.

Other sections offer such features as: the presentation of dimension systems, systems of units, standards, and introduction to the theory of dimensional analysis; the systematically arranged and clearly illustrated fundamentals of theoretical mechanics and mechanics of materials with applications to beams, columns, shafts, and reinforced concrete; the modern theory of fluid mechanics as applied to the fields of hydraulics and aerodynamics; engineering thermodynamics, embodying the latest physical concepts of the fundamentals of heat engineering; the theory of the electric, magnetic and dielectric circuits and their application to generalized networks and transient theory; the fundamental principles of general chemistry, chemical tables and industrial chemistry; the principles of light, acoustics and meteorological phenomena; an extensive handbook treatment of the properties of metallic and nonmetallic materials with reference to features of manufacture and use; and a discussion of the elementary legal aspects of contractual relations with which all engineers should be familiar.

An important feature is that of format. With readability in mind, the trimmed page has been fixed at 5½ by 8⅜ inches, 1,081 pages, illustrated, permitting the use of a larger type size and larger illustrations and diagrams than was possible in the older type of handbook. The result is a much more beautiful page typographically, and one which reduces eye-fatigue.

This is a volume which every engineer, regardless of his specialty, will find a veritable treasure trove of information. The price is indeed a modest one for a book of over a thousand pages. Copies may be obtained from the Book Department of the Technical Association of the Pulp and Paper Industry, 122 East 42nd street, New York at $5.00 per copy post paid.

To Use Mulberry Bark for Rayon Pulp

The Showa Rayon Manufacturing Company, Ltd., Tokyo, Japan, is concluding experiments for the use of mulberry bark as raw material for pulp production for rayon manufacture. With the success now indicated of the utility of such raw material, it is proposed to establish a mill for this purpose, providing the company a complete self-contained unit for pulp and rayon production. From the available mulberry bark, it is estimated that proposed mill manufacture on a commercial scale will develop an ultimate output of close to 1,000 metric tons per day.

Ohio TAPPI to Meet

The Ohio Section of the Technical Association of the Pulp and Paper Industry will meet at the Manchester Hotel, Middletown, Ohio, October 17, 1936. W. R. Willets, of the Titanium Pigment Company, will talk on "Titanium Pigments—A Review."

Pulp and Paper Industry Literature Review

Abstracts of Articles and Patents Compiled by the Abstracts and Bibliography Committee of the Technical Association of the Pulp and Paper Industry, A. Papineau-Couture, John F. Ohlson, C. E. Peterson and Clarence J. West, Chairman

Copies of United States Patents can be obtained from the United States Patent Office, Washington, D. C., for 10 cents each. Send currency, not stamps.

Raw Materials

Physical Evaluation of Pulp Cord-Wood. Anon. PAPER TRADE J. 102, No. 20:36-42 (May 14, 1936).—A description of two recommended procedures for determining the volume of wood and weight of dry wood per laboratory cord (racked and scaled at the laboratory).—A.P.-C.

Cellulose Resources. IV. Chemical Composition of Cotton Stalk. Kisaburo Shimbo. J. Agr. Chem. Soc. Japan 11:1075-1076 (135).—The whole stalk of the cotton was analyzed with the following results: moisture 8.91 per cent, alcohol-benzene extract 3.66 per cent, 1 per cent caustic soda extract 28.62 per cent, hot-water extract 14.01 per cent, cold-water extract 10.51 per cent, total cellulose (containing 67.51 per cent alpha-cellulose) 42.78, lignin 20.63 per cent, pentosans 18.38 per cent, galactan 1.23 per cent, methoxyl 3.93 per cent, nitrogen 0.77 per cent, ash 2.71 per cent, calcium pectate 1.82 per cent. The bark and woody portion were separated and compared—A.P.-C.

Chemical Studies on Woody Substances. II. A New Method for the Determination of Wood Mannan and the Mannan Content of Various Deciduous Trees. Kitsuji Nishida, Hidea Hamashima and Tokuichi Fukai. CELLULOSE IND. (TOKYO) 11:330-335 (1935).—Wood mannan is best hydrolyzed by heating with 5 per cent sulphuric acid for 44 to 45 hrs. on the water bath; hydrolysis by Schorger's method does not go to completion. The mannose is determined economically with better results as the crystals of phynylhydrazone. The hydrazone solution must be kept in the cold for 2 days for conifers, while standing for 3 weeks is required for deciduous woods. Crystals of mannose hydrazone obtained from the clear solution are washed several times with cold water and then with 70 cc. of acetone or 50 cc. of benzene. The mannan contents of the following woods were determined by this method: *Betula mandchurica* Nakai 0.27 per cent, *Phellodendron amurense* Rupr. 0.30 per cent, *Maackia amurensie* Benth. 0.71 per cent, *Tilia amurensis* Kom. 0.53 per cent, *Fraxinus mandschurica* Rupt. 0.45 per cent, and *Fraxinus rhynchophylla* Hance 0.45 per cent.—A.P.-C.

How Much Is A Cord of Pulpwood? J. Elton Lodewick. PACIFIC PULP & PAPER IND. 9, No. 9:5-10 (Sept. 1935).—A study of pulpwood conversion factors in the Pacific Northwest.—A.P.-C.

Non-Fibrous Raw Materials (1935-1936). James A. Lee PAPER TRADE J. 102, No. 17:31-36 (April 23, 1936).—A compilation of developments during 1935-1936.—A.P.-C.

Rayon Pulp from Southern Pine. Royal H. Rasch. PAPER INDUSTRY 17:948:53 (March, 1936).—Pulping and spinning tests showed that southern sulphite produced by standard pulping procedures compares favorably with commercial pulps both in its behavior at various steps of viscose processing and in the characteristics of the finished rayon made from it.—A.P.-C.

Cotton Bark as a Source of Rayon Pulp. Anon. Bull. IMP.INST. 33:446-449 (1935).—A sample of the bark of cotton stalks from Tanganyika, containing 30.45 per cent cellulose (34.5 per cent on the dry basis), when subjected to caustic soda treatment under conditions similar to those employed for the production of soda pulp, gave product with too high an ash content and too low an alpha-cellulose content for rayon manufacture. While it is possible that conditions could be found which would give a bleached pulp possessing the qualities required for rayon manufacture, the yield would be too low for economical working.—A.P.-C.

Viscose Pulp and Viscose Pulp Woods. VI. The Microbiological Decay of Japanese Beech, Fagus Sieboldi Endl. Masuzo Shikata and Isami Tsuchiyama. J.AGR.CHEM.SOC.JAPAN 11:730-733 (1935).—Viscose pulp can be produced from Japanese beech, but the wood is often decayed during transportation. Pulps were obtained from the sound and decayed woods by the soda process in 41.90 and 39.20 per cent yields, respectively. The respective yields of alpha-cellulose were 38.04 and 31.71 per cent. Decayed wood causes difficulty in digestion and decreases the yield of pulp. When the wood is soaked in water for a few months, it can be used without serious damage.—A.P.-C.

Occurrence of Compression Wood in Black Spruce and Its Effect on Properties of Groundwood Pulp. M. Y. Pillow, E. R. Schaefer and J. C. Pew. PAPER TRADE J. 102, No. 16:36-38 (April 16, 1936).—A study indicating that the presence of compression wood has a deleterious effect on the properties of groundwood and should be taken into consideration in the manufacture of certain specialized products.—A.P.-C.

Review over the Progress of Wood Investigation Since 1929. Wochbl. Papierfabr. 66, Special Number: 14-17 (Dec., 1935).—By means of 45 references in the literature of the pulp and paper producing countries, the author briefly describes the important facts from each article, dividing them into: the constitution of wood, physical properties and the chemical properties.—j.f.o.

Concerning Several Problems on Structural Wood Research. H. Saechtling. Zellstoff-Faser 32, No. 11: 161-70 (Nov., 1935).—The problems investigated are: the material and structural synthesis of wood, structural conditions for the swelling of wood, the course of vapor pressure during the swelling, the action of the accessory constituents on the course of swelling, the change in dimension during swelling, and the importance of the results in understanding the aging phenomenon.—j.f.o.

Concerning the Volume-Weight Investigation on Needle Woods. Reinhard Trendelenburg. Zellstoff-Faser 32, No. 9:129-32 (Sept., 1935).—A comprehensive survey of Germany's pulp wood is undertaken, studying the average specific gravity for spruce and pine, the specific gravity of certain parts of the tree, tree location, etc.—j.f.o.

The German Pulp and Paper Industry in Relation to the National Raw Material Economics. Roland Runkel. Zellstoff-Faser 32, No. 10:145-51 (October, 1935.)—By means of 38 references to the literature, the author dis-

cusses every phase of the raw material economics as related to the German pulp and paper industry.—J.F.O.

Wood Convention of 1935. Wochbl. Papierfabr. 66, No. 50:939-40 (Dec. 14, 1935).—Brief review of the various papers given at the 1935 meeting of forestry.—J.F.O.

Process for hindering the Growth of Harmful Microorganisms in Textile and Wood Treatment Industries. Artturi Virtanen, Helsingfors and Lauri Alanko, Enso, Finland. Finn. pat. 16,597 (Nov. 29, 1933).—Nitromethane or its halogen derivatives are added in quantities of from 0.1 to 0.0001 per cent by weight.—J.F.O.

Process for the Treatment of Wood to Prevent Blue Stain. Stockholms Superfosfat Fabriks A. Bol. Stockholm. Swed. pat. 83,832 (Sept. 16, 1931).—The wood is subjected, for a comparatively short time, with an aqueous solution of alkali borate and monochlorphenol, preferably only on the surface.—J.F.O.

Process for the Protection of Wood Against Attack of Insects. A. R. Lindblad, Stockholm, Swed. pat. 83,-103 (Dec. 30, 1932).—The wood is drenched in a solution containing calcium arsenite dissolved in acetic or formic acid.—J.F.O.

Brazilian Plant Fibers for the Manufacture of Paper. Radamus. Wochbl. Papierfabr. 67, No. 8:153 (Feb. 22, 1936).—The specific gravity, moisture content, cellulose yield and the fiber lengths and widths of eleven plants are given. The fiber length ranges from 0.83 to 1.45 millemeters and the width from 0.017 to 0.039.—J.F.O.

Chemical Investigation of the Pectin in the Ramie Bast. F. Ehrlich and R. Haensel. Cellulosechemie, 16, No. 11:97-107; No. 12:109-14 (Dec. 8, 1935; Jan. 12, 1936).—A thorough scientific investigation on the subject with methods and details.—J.F.O.

De-Inking Waste Paper. Deutsche Hydierwerke A.-G. Brit, pat. 438,403 (Nov. 15, 1935).—The paper is treated with water-soluble sulphuric acid derivatives of organic compounds, or with water-soluble salts or neutralization products thereof, that have a soap-like character and are not precipitated by lime in aqueous solutions. The organic compounds have the formula $RXR'(YSO_3H)_n$ where R is a hydrocarbon radical, X is O, S, COO, OCO, NR"CO, CONH", SO_2, NR", $SO_2NR"$ or $NR"SO_2$, R" being H or a hydrocarbon radical, or X is absent, Y is O or S or may be absent, R' is alkylene or, if Y is absent, an arylene radical, and n is 1 or 2. The sulphuric acid may be neutralized with alkalies, ammonia or organic bases such as triethanolamine, cyclohexylamine, pyridine, and may be used with alkali phosphates, with organic solvents such as chlorinated or hydrogenated hydrocarbons, or alcohols of high molecular weight, or with bentonite, fuller's earth or kieselguhr, or with other sulphonation products such as Turkey red oil. The waste paper may be treated in a hollander, etc., the treating liquor separated for re-use, the pulp washed and re-made into paper.—A.P.-C.

Deinking Printed Paper. Pierre Rossiter Hines. Fr. pat. 793,990.—The stock is refined and cooked with a chemical such as caustic soda adapted to free the ink from the pulp fibers, until tests show the stock to be defibered and the fiber substantially freed from ink particles; the latter are flocculated and dispersion of other constituents is effected, and ink particles are removed by froth flotation.—A.P.-C.

The Removal of Printing Ink from Paper. I. I. Kowalensky. Zellstoff u. Papier 16, No. 4:138-40 (April, 1936).—The removal of the printing ink is done by the flotation method, whereby the wetable material, paper fibers, are separated from the non-wetable, lampblack, mineral oils, etc. Experiments were conducted with ordinary newsprint, printing paper of 45 per cent unbleached sulphite pulp and 55 per cent wood pulp with 13.1 per cent ash, and thirdly, with bleached sulphite pulp with 4.16 per cent ash. Flotation without a flotation reagent was unsatisfactory. Petroleum will effect a separation but has certain disadvantages, alkalies are satisfactory. Fatty soaps are satisfactory but they must be available at low cost. Rosin size made by the cold process with caustic soda is satisfactory when used with petroleum. In laboratory trials up to 95 per cent of good material was recovered but in practice this would only be about 70 per cent. Although the flotation process is well known in the metallurgical industries, it is unknown in the pulp and paper manufacture.—J.F.O.

Mechanical Process

Further Contribution to the Method of Grinding Wood, "Dilute and Hot." Walter Brell. Wochbl. Papierfabr. 67, Special Number:31-37 (Dec., 1935).—By means of actual mill runs, the author proves that grinding hot at a low consistency is superior to grinding hot at a higher consistency. In the high consistency run, the consistency was maintained at 4 to 5 per cent, the stone was immersed 24 cm. in the trough, the temperature of the trough was 65°C, and the power consumption was 722 kw. In the low consistency run, the consistency was 2 to 2.3 per cent, the stone was immersed 10 to 11 cm., the trough temperature was 65°C and the power consumption was 708 kw; furthermore there was an increase of 20.9 per cent of wood ground per hour and the quality of the fiber was superior. Numerous curves show the variations throughout the runs.—J.F.O.

Pulp. Roland Runkel. Wochbl. Papierfabr. 66, Special Number:17-25 (Dec., 1935).—The possibility of grinding wood that has been treated with certain acids and bases is discussed as well as the mechanical breaking up of chips that have been partially cooked. Numerous references from the literature are mentioned. The processes are studied from the economic viewpoint as well as the engineering.—J.F.O.

Control of Speed and Temperature in Grinding Wood. George E. Fuller. Paper Mill 58, No. 34:15, 17. (Aug. 24, 1935).—A brief review of the successful application of control devices to the production of uniform groundwood on water-driven grinders.—A.P.-C.

Grinding Pulp for High Speed Paper Machines. C. O. Bachman. Paper Industry 18:101-102 (May, 1936).—A discussion of some of the more important variables involved: grade of paper, wood species, pulpstone, stone dressing, stone speed, pit temperature, pit consistency, effective grinding pressure area, paper machine head box temperature, and paper machine drainage factors.—A.P.-C.

Formulas for Practical Calculations in the Designing of a Groundwood Mill, M. Borisoff. Papeterie 58: 290-298 (April 10, 1936).—A number of practical formulas that are useful in the designing of a groundwood mill are presented.—A.P.-C.

Segmental Pulp-Grinding Wheel. George N. Jeppson assignor to Norton Co. U. S. pat. 2,032,484 (March 3, 1936).—In a segmental pulp stone the segments are uniformly and individually secured to a central support in such a manner that they are free to individually expand and contract and relieve internal wheel stresses during grinding. Each segment has one or more anchoring members such as nuts embedded within the base portion of the segment, and connected to a suitable elongated tension member such as a clamping bolt which is slidably mounted within but adjustably secured under a predetermined initial tension to a sleeve member embedded within and integrally secured to the central wheel support.—A.P.-C.

Magazine Grinder. Charles A. Waterous. U. S. pat. 2,039,572 (May 5, 1936).—In magazine grinders of the type where the logs are fed to the grinder pocket under their own pressure, in order to prevent jamming of the logs in the bottom of the magazine just above the pocket, the bottom of the wall of the magazine is hinged so that it may swing outwardly when the piston in the pocket is retracted and is returned to its original position when pressure is again applied to the pressure foot.—A.P.-C.

Blueing of Groundwood Pulp Through Fungi. E. Melin. Svensk Pappers-Tidn. 39, No. 6:89-94 (March 31, 1936).—After a few general remarks concerning the previous researches and sources of infection, such as the air and the back water, the author investigates the problem of why groundwood bales of the same mill are affected to a different extent. The growth of fungi is favored by such factors as the presence of oxygen, temperature and nutrient content of the substrate. Wetter bales are less subject to blueing on account of reduced pore space accessible to oxygen, but neither of the three items mentioned explains satisfactorily the great variations in bales from the same mill. The author finally arrives at the conclusion that the decisive factor is the microflora present in pulp simultaneously with the fungi which cause the blueing. These antagonistic organisms seem to give off certain substances which suppress the development of the blueing fungi, not all of the varieties having this power to the same extent. Chemical methods for combating harmful fungi are successful but their cost is prohibitive. The biological methods are therefore worth considering. However, before deciding upon their suitability, the laboratory experiments must be repeated on a mill scale and such problems be solved as the successful manufacture of large quantities of protective fungi of sufficient keeping quality.—C.J.W.

Alkaline Processes

The Modern Chlorine Alkali Electrolysis and its importance to the Paper Industry. A. Karsten. Wochbl. Papierfabr. 67, No. 9:170-173 (Feb. 29, 1936).—The cell does not have a diaphragm and there is no filter or separating wall between the anode and the cathode. The cell is especially adapted for small installations. Illustrations accompanies the description of the "Siemens Pestalozza Cell."—J.F.O.

Elementary Chlorine and Pulp Recovery. R. Runkel. Zellstoff-Faser 33, No. 3:33-38 (March, 1936).—With the aid of 32 references to the literature, the author discusses the use of elementary chlorine for the recovery of pulp from wood, from the time that patents were first taken out in 1872, to the present stage of development. The reasons for the earlier failures are given, mainly in that the investigators did not understand the part that chlorine played in the decomposition of wood. The author then gives a three stage process using elementary chlorine, cooking method, and also the economic part, especially gives the advantages and disadvantages over the sulphite for Germany.—J.F.O.

Impressions from a Student Trip During the Latter Part of 1935 on the Manufacture of Swedish Sulphate Pulp. Karl Erik Neumann. Wochbl. Papierfabr. 67, No. 7:125-28 (Feb. 15, 1936).—The yearly growth of wood per capita in Sweden is 7.8 cubic meters, in Germany only 0.8. In Sweden 42 per cent of the trees are spruce and 40 per cent pine, the remaining being hard woods. Nearly all the sulphate pulp manufactured is made from saw mill refuse. The largest sulphate mills are cooking with liquor circulation, the revolving digestors are becoming obsolete. The size of the digestors have increased from 75 to 125 cubic meters. For a digestor of 100 cubic meters capacity, a pump delivering 6,000 liters per minute is required. The automatic digestor filling devices were not being used, for fear of packing the chips too hard with subsequent channeling of the circulated liquor. Steaming the chips as the digestor was being filled increased the capacity about 17 per cent. The rosin recovered from the black liquor is processed and used as sizing material in the manufacture of paper. The cooked pulp is treated in kollergangs or rod mills. The recovery of chemicals is described in detail, as well as the cooking of the pulp from the chipping of the log to the dried pulp. —J.F.O.

Process for the Manufacture of a Strong Fibered, Yielding a High Viscose Solution, Very Pure Pulp. I. G. Farbenindustrie Akt. Ges. Frankfurt a.M. Aust. pat. 142,245 (Feb. 15, 1935).—It has been found, that in the chlorination treatment of hard sulphite or sulphate pulps, especially so-called kraft pulps, the chlorination time can be shortened considerably without injuring the fiber; if alkali is added simultaneously with the chlorination to dissolve the products of chlorination, in quantities so that the pH of the mixture is from 6 to 9, preferably 7.5 to 8.5—J.F.O.

Obtaining Straw Halfstuff by Maceration Without Pressure for the Production of Wrapping, Billposter and Album Papers. L. A. Skul'skaya. Tzentral. Nauch.-Issledovatel. inst. Bumanzhnaoi Prom. Materialui, 1935, No. 1:191-203; C. A. 30:3229.—A yield of 76-85 per cent of hardstuff is obtained by maceration of shredder cereal straws by forced circulation (base on oven-dry straw) at 80° C. for about 3 hours and subsequent beating to 12-15° freeness and hydraulic pressing. The product gives strong, thin wrapping, album and advertising placard papers suitable for dyeing. Cold maceration consumes 3 days and gives papers with inferior mechanical properties.—C.J.W.

Comparative Study of the Technical Conditions of Production of Kraft Pulp for Reworking into Cable Papers. Ya. A. Denisov. Tzentral. Nauch-Issledovatel. Inst. Bumazhnoi Prom. Miterialui 1935, no. 1:13-70; C. A. 30:3229.—A comprehensive study of the methods of production and testing of kraft pulp suitable for conversion into cable papers of Soviet standards is based on the examination of foreign practice, extensive experimental results and the experience of the Novo-Lyalinskii mill. The conditions of pulping and the properties of the resulting kraft pulp for the production of cable papers are best evaluated by the bursting (Mullen) and tearing (Elmendorf) strengths. Experience of the Novo-Lyalidskii mill indicates that a kraft pulp of medium hardness (Sieber) is suitable for the production of cable papers. The resulting sulphate papers correspond to the tentative standards but are inferior in strength to the imported papers produced from a harder stock.—C.J.W.

The Effect of Spruce Wood on the Properties of Kraft Pulp for the Production of Cable Papers. Ya. A. Denisov. Tzentral.-Nauch.-Isseldovatel. Inst. Bumazhnoi Prom. Materialui 1935, no. 1:70-105; C. A. 30:3229.—Comparative pulping of pine and spruce woods and the effect of the spruce wood on the properties of kraft pulp and cable paper were studied. Under identical conditions of sulphate pulping, spruce (*picea abovata*) is more difficultly dignified than pine wood. Hard spruce kraft pulp on beating gives more easily defibrillated, elastic fiber and a cable paper of greater density, greater tensile strength and greater resistance to puncture (Mullen) than is obtained from pine kraft pulp of an equal hardness. Spruce wood, possessing shorter tracheid cells, lower density and consequently thinner cell walls, gives a harder kraft pulp with less resistance to tearing (Elmendorf) than pine wood. Spruce kraft pulp contains 2-3 times less of mate-

rial extractable with ether and alcohol than pine pulp. In general, hard spruce pulp of the kraft type is a fiber of a special type, possessing different physical and mechanical properties from the pine kraft pulp of the same hardness. The fitness of spruce wood for the production of kraft pulp suitable for the conversion into cable papers depends on the habitat and the nature of the trees and must be individually determined by experimentation. The use of mixed pine and spruce wood for the production of kraft pulp and cable papers has no advantage over spruce wood alone. Under conditions of large scale production it will be difficult to determine the suitable proportions of pine and spruce woods, the amount of alkali and the degree of beating from mixed stocks. Though the yield of kraft pulp from spruce wood is greater than that from pine wood based on the weight of dry wood, its lower density results in lower yields per digester charge.—C.J.W.

Use of Straw in Paper Industry. O. G. Ioffe. Tzentral. Nauch.-Issledovatel. Inst. Bumazhnoi Prom. Materialui 1935, no. 1:286-292; C. A. 30:3230.—Production of straw pulp and paper is discussed from the economical viewpoint.—C.J.W.

Refinement in the Process of Reworking of (Cellar) Materials for the Production of Cigarette, Transfer and Condenser Paper. L. A. Kantor and S. M. Ikel'zon. Tzentral Nauch.-Isseldovatel. Inst. Bumazhnoi Prom. Materialui 1935, no. 1.180-191; C. A. 3230.—By a series of mechanical operations, previously described, the chaff contents of flax tows were reduced from 50 to 25-34 per cent to 8-9 and 5. 5-6 per cent, respectively, with 45 and 61 per cent yield of fiber. The products with 8-9 per cent chaff, cooked with 10 per cent calcium oxide and 5 per cent sodium hydroxide at 4 atmospheres for 9 hours, followed by washing, beating to 35-38° freeness and bleaching with a consumption of 3.5-4 per cent of active chlorine, gave an entirely white, chaff-free halfstuff suitable for the production of cigaret and transfer papers of the standard grade but with considerably higher mechanical properties. The products with a maxium of 5.5-6 per cent chaff, when treated as above, resulted in a hardstuff and a white, chaff-free condenser paper with satisfactory electric and mechanical properties. Bleaching of halfstuff with 4 per cent chlorine for more than 4-5 hours results in porous and perforated condenser paper.—C.J.W.

Chemical Processes in the Preparation of Straw Cellulose. R. S. Hilpert and A. Wolter. Angew. Chem. 49:231-235 (1936); C. A. 30:4003.—The investigations carried out with rye straw, a technical straw mixture and wheat straw. Experimental results are reported on boiling with water, soda, sodium sulphide and sodium sulphite and digestion with sodium hydroxide. Pentosan and lignin determinations were made. It was found that carbon dioxide removal during the treatment is essential and that it is possible to prepare a cellulose comparable to that prepared from the bisulphite substance for fir wood, if excessive alkalinity of the liquid is avoided. The mechanism cannot be considered as a simple solution process but can only be explained by the decomposition of a larger complex, the manner of which is dependent upon the reagent used. No indication could be found that cellulose as such existed in the straw.—C.J.W.

Investigation of Chlorine Methods of Separation of Cellulose. V. I. Minaev and S. S. Frolov. Trans. VI Mendeleev Congr. Theoretical Applied Chem. 1932, 2, part 1:792-800 (1935); C. A. 30:4004.—Different existing methods are reviewed. The chlorine methods of Dutch patent 15,120 were applied to waste flax tow and other materials. Cellulose obtained from bleached flax waste analyzed: ash 1.86 per cent; alpha-cellulose 68.5 per cent; copper number 0.34 (in unbleached material 0.30); resin and wax content 0.3 per cent. The yield of cellulose was 46-47 per cent.—C.J.W.

Method for Isolating a Cotton Fiber-Like Material from Rice Straw. Munemari Tanaka. J. Chem. Soc. Japan 56:1525-1526 (1935).—A method of purification of cellulose by treating the straw in alkali, vegetable glue and resinous substances, etc.—A.P.-C.

Treatment of Black Liquors. John A. Hanbly assignor to Consolidated Paper Corp., Ltd. U. S. pat. 2,036,213 (April 7, 1936).—The black ash smelting furnace is operated on the principle of the gas producer. The black ash is burned in the lower zone of the smelting furnace, and the black liquor is evaporated in a higher zone, so as to produce a combustible gas consisting essentially of carbon monoxide, hydrogen and hydrocarbons. The required amount of air is admitted to the smelting zone only.—A.P.-C.

Method of Treating Black Liquor. E. L. Rinman. U. S. pat. 2,034,833 (March 24, 1936).—This is an improvement on U. S. pat. 1,906,102. Hot concentrated black liquor is added with vigorous agitation to a heated, powdered alkaline-earth oxide to produce a dry powdered mass suitable for dry distillation.—A.P.-C.

Method of Concentrating Black Liquor. Erik Oman and Hans E. A. Göth, assignors to Indutrikemiska Aktiebolaget. U. S. pat. 2,039,444 (May 5, 1936).—The heat of flue gases is utilized for the evaporation by indirect heating, to temperatures falling below the saturation temperatures of the gases. The liquors are thus indirectly heated while their concentration remains unchanged, but are cooled by direct contact with the gases.—A.P.-C.

Inka System in Industry. G. Schotte. Svensk Pa. ppers-Tidn. 39, no. 5:76-82 (March 15, 1932).—A detailed description is given of the Inka system for evaporating black liquor which has been patented by Industrikemiska Aktiebolaget in Stockholm, and for which a better heat utilization is claimed. A gas-steam mixture is used as the heat giving medium. The stack gases are forced through a screen over which the black liquor is flowing; the gas becomes saturated with water vapor and the heat of condensation is used for warming and pre-thickening the liquor. The air-vapor mixture from the pre-thickening operation, together with fresh air, is used as the combustion air for burning the waste liquor. Several installations operate satisfactory in Sweden. Experiments with sulphite waste liquor were promising but have not yet passed the experimental stage.—C.J.W.

Tall Oil—Liquid Rosin. C. Becher, Jr. Chem. Ztg. 60, no. 37:373-375 (May 6, 1936).—Tall oil, a by-product of the soda and sulphate pulp industry, consists of rosin and fatty acids and is obtained in amounts of 47 kg. per ton of pulp when 100 per cent pine is used; additions of 15-20 per cent spruce decrease the yield to 25-30 kg. per ton. The fatty acids consist of oleic and linolenic acid and small amounts of palmitic, brassic and isolinolenic acids; the rosin acids are chiefly composed of oxyresinic and aboetinic acids. The various methods of purifying tall oil with special regard to the patent literature and the use of tall oil for soaps and asphalt emulsions are discussed. —C.J.W.

Device for Soda Smelt Ovens in the Manufacture of Sulphate Pulp. O. J. Beck, Gothenberg & E. Nordin Billingfords. Finn. pat. 16,695 (April 3, 1934).—J.F.O.

Device for Water-Cooled Blower Forms for the Air Inlet on Soda Smelt Ovens in the Manufacture of Sulphate Pulp. H. Unden, Nensjo, Sweden. Finn. pat. 16,696 (May 14, 1934).—J.F.O.

Device for Connecting Several Soda Smelt Ovens to a Rotating Oven. B. H. O. de Verdier, Fredriksberg. Swed. pat. 83,854 (March 2, 1934).—J.F.O.

Process for the Treatment of Wood Charcoal in Order to Make it Less Dusty. Fritjof Hammarstrom A. Bol. Soderhamn. Swed. pat. 83,743 (April 26, 1933).—The wood charcoal is sprayed or submerged in the waste liquors from the manufacture of sulphite or sulphate pulps, and then dried in the air.—J.F.O.

Sulphite Process

Process for the Removal of Selenium and Arsenic from Molten Sulphur. Metallgesellschaft A. G., Frankfurt a.M. Swed. pat. 84,394 (Feb. 29, 1932).—A dispersion medium is used, as for example, magnesium chloride or some other suitable halogen salt.—J.F.O.

Process for the Recovery of Sulphur from Roasting Gases Low in Sulphur Dioxide. Imperial Chemical Industries Ltd., Millbank, Finn. pat. 16,673 (May 5, 1934).—The gases being treated are enriched with sulphur dioxide gas and then changed over to sulphur vapors by treatment with a reduction means containing carbon. The gases are then passed over a catalyser at increased temperatures.—J.F.O.

Manufacture of Sulphite Pulp with Cooking Acid Containing Selenium. Erik Hagglund, C. Backstrom, M. Karanovic, L. Rundquist and O. Vincent. Zellstoff u. Papier 15, No. 12:482-86; 16, No. 1:12-15 (Dec., 1935; Jan., 1936).—If sulphite cooking acid is heated alone, the stability increases with increase of base. The formation of sulphurous acid decreases with increased base, this holds also for cooking acid containing selenium. A certain content of thiosulphate is permissible for its stability of cooking acids high in base. A selenium content up to 0.75 milligrams per liter of cooking acid showed no harmful effects on the strength properties of the pulp; but in concentrations of 1 to 2 milligrams the effect is very noticeable. The effect of selenium on the strength properties of the pulp is lessened or increased according to the presence of other constituents in the cooking acid. Numerous curves and tables accompanies the article.—J.F.O.

Cooking Beech Wood By the Sulphite Process. H. G. Klein and E. Kurzhals. Zellstoff u. Papier 15, No. 12:486-87 (Dec., 1935).—The beech wood must be free of all bark and knots. A calcium oxide content of 1.1 per cent is suitable for the cooking acid. The pre-cooking stage must be lengthened as the penetration of the chips is slow. All cooking data is given.—J.F.O.

Process and Device for the Manufacture of Sulphite Pulp. C. Bergson, Kolback. Swed. pat. 83,947 (Jan. 31, 1934).—The process concerns the manufacture of sulphite pulp with the use of one or more digestors and at least two acid containers. The relief gases and relief liquors are passed into one of the acid containers, and what is not absorbed there is passed into the other acid container.—J.F.O.

Sulphite Process

The Diffusion of the Cooking Acid Into the Wood During the Sulphite Cook and Reactions Connected with this process. E. Hägglund. Svensk Pappers-Tidn. 39, no. 6:95-100 (March 31, 1936).—The reason for the degradation resulting when isolated wood fibers are exposed to sulphite cooking acid is the high acidity of the latter ($pH = 2.3$). In the chips the fibers are protected against the high rate of acid degradation because of the lower H ion concentration in the wood ($pH = 3\text{-}4$). The rate of the cooking reaction is of the first order; in other words it is directly proportional to the concentration of lignin present in the solid phase (the wood); it is furthermore controlled by the H ion concentration of the liquid phase (the cooking acid solution) and not by the H ion concentration of the solid phase which arises from the free ligno-sulphonic acid in that phase. The rate of diffusion into the chips depends to a great extent upon the speed of penetration in transverse direction, the quantity of air enclosed in the chips and the diffusion of the lignosulphonic acid out of the chips.—C.J.W.

Review of Developments in the Sulphite Industry During 1934-1935. R. Schulerud. Papir-J. 24, no. 4: 36-38; no. 5:43-46; no. 6:53-56 (March 10, 20, 31, 1936).—The author discusses recent developments in chip screens, the liquor and gas circulation system of the Lurgi, systems for washing digesters clean after blowing, the new Sulfidin method of the Lurgi, different types of pulp screens, bleaching installations, the drying systems of the Svenska Flaktfabriken, a heat recovery system utilizing the heat from the pulp at the time of blowing the digesters, a pulp web cutting and baling device and methods for eliminating pitch troubles.—C.J.W.

Absorption Period in Sulphite Cooking. C. R. Bergson. Svensk Pappers-Tidn. 39, no. 3:32-36 (Feb. 15, 1936).—The absorption period is the time required for complete penetration of the chips with cooking liquor after which the temperature of the digester contents can be safely raised above 105° C. The new circulation systems, the use of preheated cooking acid and the steaming of the chips before the introduction of the acid have made it possible to reduce this time considerably in the sulphite cooking cycle. A very uniformly cooked pulp is obtained according to this method with ensuing increase in production. Or, when the usual cooking period is allowed, lower final cooking temperatures become feasible.—C.J. W.

Liquor Circulation System of Wallin-Svensson for Sulphite Digesters. V. Ullmann. Papir-J. 24, no. 2: 15-18; no. 3:23-25 (Feb. 12, 29, 1936).—The article discusses the Wallin-Svensson circulating system for sulphite digesters by describing the installation at Hissmofors in northern Sweden. The liquor is injected into the digester by means of a mixture of steam and gas and circulation is effected by injecting steam and gas of a higher pressure than that for injecting the digesting liquor. No pump is employed. Savings in heat and sulphur are claimed for the system, other advantages being uniform cooking conditions, resulting in a uniform product and a waste liquor with a high sugar content. *See also* U. S. Patent 1,820,994 (Sept. 1, 1931).—C.J.W.

Role of the Base in Sulphite Pulping. C. R. Mitchell and F. H. Yorston. PULP PAPER MAG. CAN. 37:195-198, 209 (March, 1936).—The lime required in sulphite cooking liquors is determined by the sulphur consumption, and it is suggested that the latter is approximately equal to the amount of sulphur present in the liquor in the form of calcium bisulphite. The quantity of sulphur theoretically necessary for sulphonation of the lignin to a degree sufficient for cooking is much less than the actual consumption. A distinction is made between the quantity of lime supplied in the cooking liquor relative to the quantity of wood, and the concentration of lime in the liquor. By cooking at constant concentrations of total and of combined sulphur dioxide it is shown that at a given total sulphur dioxide concentration the rate of cooking and the rate at which carbohydrates are dissolved vary in a systematic manner with variations in the concentration of combined sulphur dioxide. The yield of pulp, and possibly the strength of the pulp, are determined by the relative rates of these two processes and not by either alone.—A.P.-C.

Control of Sulphur Consumption in the Manufacture of Sulphite Pulp. C. B. Davies. PULP PAPER MAG. CAN. 37:140-148 (Feb., 1936).—Possible sulphur losses in the

acid plant are comparatively unimportant; operating statistics demonstrate that a mill may be operated with low sulphur consumption when the sulphur burner and combustion chamber temperatures are comparatively low, and with a burner gas as low as 12 percent SO_2. Within the limits necessary to normal sulphite mill operation, (1) sulphur consumption need not be affected by variations in cooking acid strength; (2) the quality of the pulp produced need have no bearing on the sulphur consumption, as with proper operating control the highest grades of pulp can be produced with a consumption of less than 200 lbs. of sulphur per ton of pulp. Proper control of digester relief is an essential part of sulphite mill operation if a uniformly low sulphur consumption is to be obtained. A.P.-C.

Recovery of Ammonia from Pulp Liquor. Roger W. Richardson assignor to Canadian Industries Ltd. Can. pat. 353,924 (Nov. 5, 1935).—Hot cooking liquor from the ammonium bisulphite process is alkalinized and passed counter-current to an inert gas, such as air. The resulting gas is cooled to about 25°C. Part of the condensable ammonia is absorbed in the condensed liquid. The uncondensable ammonia is recovered by scrubbing the uncondensed gas free of ammonia.—A.P.-C.

Current Trends in Sulphite Digester Operation. R. T. Steedman. PULP PAPER MAG. CAN. 37:192-194 (March, 1936).—A procedure is described which permits of evaluating the actual performance of a sulphite digester so that data may be available from which to estimate the actual benefits of proposed new digester equipment. The influence of ideal conditions (such as uniform feed and size of chips) on the functioning of auxiliary digester equipment, and the possibilities of errors due to measurements being taken when the wood supply is at its optimum condition or due to stock being left in the digesters, are discussed.—A.P.-C.

Fiber Liberating Process. George A. Richter assignor to Brown Co. U. S. pat. 2,032,437 (March 3, 1936).—Chips are subjected to the action of ammonia vapors under pressure; a solution of sodium sulphite and sulphurous acid is introduced into the digester to form a sodium and ammonium bisulphite liquor in which the chips are cooked. Sodium base alkaline compound is added to the waste liquor to drive off the ammonia, which is recovered, and the soda is recovered by known methods and re-used for making fresh liquor.—A.P.-C.

Potentiometric Determination of Sugars, Especially in Sulphite Waste Liquor. Kurt Schwabe and Richard Kreschnak. Wochbl. Papierfabr. 67, Special Number: 37-41 (Dec., 1935).—No difference in potential in the titration of mercuric cyanide solution and pure sugar solution can occur in alkaline solution. The determination of sugar content by reversed titration of alkaline ferricyanide solution with pure sugar solution gives quantitative results. The sugar content of sulphite waste liquor can be determined if an equal amount of alkaline ferricyanide is titrated once with the original and the other time with the waste liquor after the removal of the sugar. The methods are given in detail, solutions and manipulation and numerous curves and tables accompanies the article.—J.F.O.

Process for the Continuous Fermentation of Sulphite Waste Liquor and Other Worts Containing Carbohydrates, for the Manufacture of Alcohol Without the Recovery of Yeast. Svenska Jastfabriks A. Bol., Stockholm, Swed. pat. 84,159 (March 22, 1933).—J.F.O.

Process for the Manufacture of Combustible Material. J. A. Johansson, Gothenburg. Swed. pat. 83,805 (Oct. 31, 1934).—Peat, in various forms, is air dried and then mixed with Sulphite waste liquor. The mixture is pressed and then dried again in contact with the atmosphere.—J.F.O.

Process for the Pre-Heating of Mash. Zellstofffabrik Waldhof, Mannheim. Finn. pat. 16,321 (July 12, 1933). The pre-heating takes place by the hot distillation residue at 80 to 98°C. obtained in the distillation of the mash and under a pressure of at least 3 atmospheres.—J.F.O.

Device for the Separation of Sulphurous Acid from Waste Sulphite Liquor. A. E. Heinemann, Dresden. Ger. pat. 611,935 (July 12, 1930).—The sulphite waste liquor is pumped against a target in a separation column.—J.F.O.

Process for the Purification of Pulp Waste Liquors and Other Organic Substances in Colloidal or Pseudo Molecular form Containing Water Suitable for Use, with the Simultaneous Precipitation of the Hardness Forming Material Resulting in the Recovery of Fertilizer Materials. Chemische Werke, Wiesbaden. Aust. pat. 142,225 (Feb. 15, 1935).—One cubic meter of sulphite waste liquor, coming hot from the digestor, is stirred with 15 kilograms of primary ammonium phosphate, thereby a heavy precipitation of phosphoric acid calcium oxide with organic substances takes place. Then 10 liters of concentrated ammonium water is added and the precipitation is complete. The yield of dry precipitate amounts to 30 to 40 kilograms and is composed of the following; 30 to 33 per cent total phosporic acid, 18 to 22 per cent calcium oxide, 8 to 10 per cent iron oxide plus aluminum oxide, about 35 per cent organic substance and ½ to 2 per cent nitrogen.—J.F.O.

Yeast from Sulphite Waste Liquor. Paper Trade J. 102, No. 20:33-35 (May 14, 1936).—A description of the process and plant of Best Yeast Ltd., at Liverpool, N. S.—A.P.-C.

Miscellaneous Digesting Processes

Process for the manufacture of objects from cellulose materials which are impervious to decay. I. G. Farbenindustrie A. G., Frankfurt a.M. Swed. pat. 84,392 (May 12, 1934).—The objects or the fiberous materials are treated with mono or poly azo dyestuffs with at least two nitro groups in the molecule.—J.F.O.

Method and Apparatus for the Treatment of Fibrous Material. Thomas L. Dunbar assignor to Chemipulp Process, Inc. U. S. pat. 2,038,925 (April 28, 1936).—Woodchips are treated with water or other suitable solvent liquor at high temperature and are then conveyed in novel manner to the digester where they are cooked in the usual manner. The water in which the chips are pretreated is drained during the passage from the pretreatment tank to the digester and some of this water may be re-used for pretreatment of a fresh batch of chips.—A.P.-C.

Alcoholic Treatment of Ligneous Cellulosic Material. Samuel I. Aronovsky assignor to The Northwest Paper Co. U. S. pat. 2,037,001 (April 14, 1936).—Wood or other lignified cellulose material is treated with a mixture of water and one or more alcohols, the latter being selected so that they form a homogeneous mixture with water at high temperatures and separate more or less completely on cooling. In order to inhibit excessive acidity during cooking (produced by liberation of formic and acetic acids) a small quantity of urea preferably is added to the liquid.—A.P.-C.

Chemical Purification and Modification of Cellulose Fiber. George A. Richter assignor to Brown Co. U. S. pat. 2,036,606 (April 7, 1936).—Pulp is purified by a three-stage treatment: (1) treating with a mercerizing liquor, (2) subjecting to acid hydrolysis, and (3) again treating with a mercerizing liquor, with washing after each stage.—A.P.-C.

IMPORTS OF PAPER AND PAPER STOCK

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING OCTOBER 3, 1936

WALL PAPER

S. K. Lonegren, *Gripsholm*, Gothenburg, 7 bxs.; ———, *Europa*, Bremen, 1 cs.; J. E. Bernard & Co., *Black Gull*, Antwerp, 6 bls.

PAPER HANGINGS

W. H. S. Lloyd & Co., *Georgic*, London, 7 bls.

NEWSPRINT

N. Y. Evening Journal, *Snar*, Quebec, 4,191 rolls; Jay Madden Corp., *Scanyork*, Kotka, 400 rolls; Jay Madden Corp., *Manhattan*, Hamburg, 472 rolls; Jay Madden Corp., *Hammaren*, Kotka, 306 rolls; Lunham & Reeve, Inc., *Hammaren*, Kotka, 265 rolls; H. Reeve Angel & Co. Inc., *Hammaren*, Kotka, 134 rolls; News Syndicate Co., *G. T. D.*, Gatineau, 303 rolls; International Paper Co., *Humberarm*, Dalhousie, 6,145 rolls; International Paper Sales Co., Humberarm, Dalhousie, 816 rolls.

PRINTING PAPER

The Morilla Co., *Westernland*, Antwerp, 2 cs.; Keuffel & Esser Co., *Manhattan*, Hamburg, 26 rolls; H. Reeve Angel Co. Inc., *Hammaren*, Kotka, 21 bls.; E. H. Locatelli, *Normandie*, Havre, 23 cs.

WRAPPING PAPER

———, *Pr. Roosevelt*, Hamburg, 713 rolls; Guaranty Trust Co., *Gripsholm*, Gothenburg, 117 rolls; F. C. Strype, *Westernland*, Antwerp, 5 cs.

FILTER PAPER

H. Reeve Angel & Co. Inc., *Georgic*, London, 2 cs.; H. Reeve Angel & Co. Inc., *Berengaria*, Southampton, 18 cs.; A. Giese & Son, *Berengaria*, Southampton, 2 bls.; Orbis Products Trading Co., *Manhattan*, Havre, 7 bls.

DRAWING PAPER

Keuffel & Esser Co., *Manhattan*, Hamburg, 39 cs.

SURFACE COATED PAPER

C. Happel, *Pr. Roosevelt*, Hamburg, 1 cs.; ———, *Europa*, Bremen, 13 cs.; L. A. Consmiller, *Europa*, Bremen, 19 cs.; ———, *Westernland*, Antwerp, 4 cs.; Gevaert Co. of America, *Westernland*, Antwerp, 36 cs.

BASIC PAPER

Globe Shipping Co., *Europa*, Bremen, 6 cs.; Dingelstedt & Co., *Europa*, Bremen, 12 cs.

DECALCOMANIA PAPER

B. F. Drakenfeld & Co., *Samaria*, Liverpool, 55 cs. (duplex).

DECALCOMANIAS

Sellers Transportation Co., *Europa*, Bremen, 33 cs.

TISSUE PAPER

J. Romer, *Kiyosumi Maru*, Kobe, 6 cs.; O. Hommerl Co., *Samaria*, Liverpool, 3 cs.

DRAUGHTING PAPER

A. C. Cofod & Co., *Samaria*, Liverpool, 1 ble.

GUMMED PAPER

W. A. Foster & Co., *Samaria*, Liverpool, 2 cs.

MISCELLANEOUS PAPER

———, *Kiyosumi Maru*, Kobe, 28 cs.; A. Giese & Son, *Normandie*, Havre, 61 bls.; Keller Dorian Paper Co., *Normandie*, Havre,, 6 cs.; ———, *Normandie*, Havre, 6 cs.; The Borregaard Co. Inc., *Gripsholm*, Gothenburg, 796 rolls 118 bls.; F. L. Kramer & Co., *Gripsholm*, Gothenburg, 200 bls.; Blauvelt Wiley Paper Manufacturing Co., *Gripsholm*, Gothenburg, 20 rolls; Jay Madden Corp., *Scanyork*, Helsingfors, 31 bbls.; R. J. Saunders & Co. Inc., *Berengaria*, Southampton, 6 cs.; H. Schutte & Co., *Exeter*, Genoa, 20 cs.; Keller Dorian Paper Co., *Exeter*, Marseilles, 6 cs.

RAGS, BAGGINGS, ETC.

M. Snedeker Corp., *Caledonia*, Glasgow, 104 bls. paper stock; ———, *Caledonia*, Glasgow, 66 bls. paper stock; Irving Trust Co., *Black Eagle*, Rotterdam, 93 bls. rags; L. M. Cohn, *Black Eagle*, Rotterdam, 20 bls. bagging, 23 bls. rags; E. J. Keller Co. Inc., *Black Eagle*, ———, 61 bls. paper stock, 87 bls. bagging; Irving Trust Co., *J. Jadot*, Antwerp, 65 bls. bagging; ———, *Georgic*, London, 7 bls. rags; J. Levy & Son, *Oriente*, Havana, 13 bls. rags; Manufacturers Trust Co., *Pr. Roosevelt*, Hamburg, 33 bls. rags; M. Snedeker Corp., *Pr. Roosevelt*, Hamburg, 71 bls. paper stock; Irving Trust Co., *Pr. Roosevelt*, Hamburg, 67 bls. paper stock; W. Steck & Co., *Sarcoxie*, Havre, 101 bls. rags; Castle & Overton, Inc., *Sarcoxie*, Havre, 57 bls. rags; Hicks Costarino & Co., *Sarcoxie*, Havre,. 299 bls. rags; R. J. Ross & Co., *Sarcoxie*, Havre, 691 bls. rags; D. M. Hicks, Inc., *Sarcoxie*, Havre, 36 bls. rags; J. T. Flannery, *Sarcoxie*, Havre, 353 bls. rags; E. J. Keller Co. Inc., *Sarcoxie*, ———, 106 bls. rags; ———, *American Farmer*, London, 8 bls. rags; ———, *Scanyork*, Gdynia, 58 bls. old linens; ———, *Exeter*, Alexandria, 225 bls. rags; Castle & Overton, Inc., *Exeter*, Alexandria, 183 bls. rags; W. Steck & Co., *Exeter*, Alexandria, 110 bls. bagging; E. J. Keller Co. Inc., *Exeter*, ———, 247 bls. paper stock; Van Oppen & Co., *Black Gull*, Antwerp, 109 bls. bagging; Philadelphia National Bank, *Black Gull*, Antwerp, 119 bls. rags; M. Hirschhorn, *Amagisan Maru*, Kobe, 30 bls. rags; ———, *Norfolk Maru*, Kobe, 300 bls. cotton waste; O'Brien Padawer Co., *Norfolk Maru*, Kobe, 50 bls. cotton waste; Wertheimer Bag Co., *Fort Townshend*, Halifax, 100 bls. bagging; ———, *City of Flint*, Liverpool, 22 bls. bagging; Darmstadt Scott & Courtney, *City of Flint*, Manchester, 63 bls. rags; E. J. Keller Co. Inc., *Tai Yin*, ———, 80 bls. paper stock.

GLUE STOCK, ETC.

Guaranty Trust Co., *Polycarp*, Bahia, 80 bags glue stock; G. Lever & Co. Inc., *Polycarp*, Ceara, 52 bls. glue stock; ———, *Westernland*, Antwerp, 50 cs. bone glue; ———, *American Farmer*, London, 400 bags glue.

OLD ROPE

E. J. Keller Co. Inc., *Tai Yin*, ———, 9 coils; Banco Coml. Italiane Trust Co., *American Farmer*, London, 41 coils.

CASEIN

———, *Statendam,* Rotterdam, 399 bags; ———, *Samaria,* Liverpool, 333 bags; ———, *Sarcoxie,* Havre, 200 bags; American British Chemical Supplies, *Pr. Roosevelt,* Havre, 367 bags.

WOOD PULP

———, *Pr. Roosevelt,* Hamburg, 204 bls. wood pulp, 21 tons; ———, *Hoegh Transporter,* Trieste, 1,638 bls. wood pulp; Stora Kopparberg Corp., *Gripsholm,* Gothenburg, 265 bls. wood pulp; Perkins Goodwin & Co., *Gripsholm,* Gothenburg, 135 bls. sulphite; Price & Pierce, Ltd., *Heddernheim,* ———, 600 bls. unbleached sulphite; Pagel Horton & Co. Inc., *Hedderheim,* Sweden, 9,180 bls. wood pulp; Gottesman & Co. Inc., *Gripsholm,* Gothenburg, 750 bls. sulphate; Lagerloef Trading Co., *Scanyork,* Helsingfors, 125 bls. sulphate, 25 tons; Lagerloef Trading Co., *Scanyork,* Wiborg, 1,287 bls. sulphite, 244 tons; Perkins Goodwin & Co., *Scanyork,* Gdynia, 600 bls. wood pulp, 92 tons; Bulkley Dunton & Co., *Hammaren,* ———, 2,600 bls. wood pulp, 537 tons; Lagerloef Trading Co., *Hammaren,* Viipuri, 2,870 bls. sulphite; Lagerloef Trading Co., *Hammaren,* Viipuri, 930 bls. sulphate; Perkins Goodwin & Co., *Hammaren,* Gothenburg, 280 bls. sulphate; Price & Pierce, Ltd., *Hammaren,* Gothenburg, 600 bls. unbleached sulphite.

WOOD PULP BOARDS

Jay Madden Corp., *Pr. Roosevelt,* Hamburg, 33 rolls; H. Fuchs & Son, *Gripsholm,* Gothenburg, 9 crates; Salwen Paper Co., *Gripsholm,* Gothenburg, 25 bls.; Jay Madden Corp., *Scanyork,* Wiborg, 15 bls.; ———, *Hammaren,* Viipuri, 167 rolls; Jay Madden Corp., *Hammaren,* Kotka, 254 rolls.

NEWARK IMPORTS

WEEK ENDING OCTOBER 3, 1936

H. G. Craig Co., *Donnacona, I,* Donnacona, 555 rolls newsprint; H. G. Craig Co., *Donpaco,* Donnacona, 577 rolls newsprint; H. G. Craig, *Newscarrier,* Donnacona, 338 rolls newsprint.

PORTLAND IMPORTS

WEEK ENDING OCTOBER 3, 1936

Bulkley Dunton & Co., *Hammaren,* ———, 750 bls. wood pulp.

BOSTON IMPORTS

WEEK ENDING OCTOBER 3, 1936

J. J. Ryan & Sons, Inc., *Norfolk Maru,* Kobe, 100 bls. cotton waste; Pagel Horton & Co. Inc., *Heddernheim,* Sweden, 500 bls. wood pulp; Gottesman & Co. Inc., *Heddernheim,* Sweden, 2,400 bls. wood pulp; Price & Pierce, Ltd., *Heddernheim,* ———, 3,300 bls. unbleached sulphite; Bulkley Dunton & Co., *Heddernheim,* ———, 570 bls. wood pulp; E. J. Keller Co. Inc., *Exeter,* ———, 66 bls. paper stock.

NEW LONDON IMPORTS

WEEK ENDING OCTOBER 3, 1936

Pagel Horton & Co., *Bessa,* Sweden, 3,870 bls. wood pulp; Gottesman & Co. Inc., *Bessa,* Sweden, 2,500 bls. wood pulp.

PHILADELPHIA IMPORTS

WEEK ENDING OCTOBER 3, 1936

E. J. Keller Co. Inc., *Black Eagle,* ———, 533 bls. rags; J. L. Shoemaker & Co., *Black Eagle,* Rotterdam, 7 cs. paper; ———, *Black Eagle,* Antwerp, 24 bls. rags; E. J. Keller Co. Inc., *Sarcoxie,* ———, 421 bls. rags; Castle & Overton, Inc., *Sarcoxie,* Havre, 1,057 bls. rags; Castle & Overton, Inc., *Sarcoxie,* Dunkirk, 145 bls. new cuttings; Lagerloef Trading Co., *Scanyork,* Wiborg, 1,521 bls. sulphite, 280 tons; Lagerloef Trading Co., *Scanyork,* Kotka, 961 rolls wood pulp boards, 104 tons; Jay Madden Corp., *Scanyork,* Kotka, 168 bls. wood pulp boards, 25 tons; J. W. Hampton Jr. Co., *Scanyork,* Kotka, 108 rolls newsprint; Chase National Bank, *Norfolk Maru,* Kobe, 50 bls. rags; ———, *Norfolk Maru,* Kobe, 100 bls. cotton waste; E. J. Keller Co. Inc., *Norfolk Maru,* ———, 320 bls. rags; Philadelphia National Bank, *City of Flint,* Liverpool, 49 bls. bagging; Pagel Horton & Co. Inc., *Bessa,* Sweden, 500 bls. wood pulp; Gottesman & Co. Inc., *Bessa,* Sweden, 1,125 bls. wood pulp; Price & Pierce, Ltd., *Bessa,* ———, 7,950 bls. unbleached sulphite; Price & Pierce, Ltd., *Bessa,* ———, 600 bls. unbleached kraft pulp; E. J. Keller Co. Inc., *Binnendyk,* ———, 100 bls. paper stock.

WILMINGTON IMPORTS

WEEK ENDING OCTOBER 3, 1936

Lagerloef Trading Co., *Scanyork,* Helsingfors, 2,480 bls. sulphite, 421 tons; Lagerloef Trading Co., *Scanyork,* Wiborg, 6,200 bls. sulphite, 1,240 tons; Perkins Goodwin & Co., *Scanyork,* Gdynia, 970 bls. wood pulp, 150 tons.

BALTIMORE IMPORTS

WEEK ENDING OCTOBER 3, 1936

Congoleum Nairn Co., *Black Eagle,* Rotterdam, 95 bls. rags; Congoleum Nairn Co., *Black Eagle,* Antwerp, 185 bls. rags; American British Chemical Co., *Black Eagle,* Antwerp, 667 bags casein; Castle & Overton, Inc., *Hammaren,* Viipuri, 1,589 bls. wood pulp; Lagerloef Trading Co., *Hammaren,* Viipuri, 1,343 bls. sulphite; Lagerloef Trading Co., *Hammaren,* Kotka, 520 bls. sulphite; Perkins Goodwin & Co., *Hammaren,* Gothenburg, 1,778 bls. kraft pulp; Perkins Goodwin & Co., *Hammaren,* Gothenburg, 750 bls. sulphate; Johaneson Wales & Sparre, Inc., *Hammaren,* Gothenburg, 500 bls. sulphate; Johaneson Wales & Sparre, Inc., *Hammaren,* Gothenburg, 299 bls. sulphite; The Borregaard Co. Inc., *Hammaren,* Gothenburg, 400 bls. chemical pulp; Price & Pierce, Ltd., *Hammaren,* Gothenburg, 175 bls. unbleached sulphite; Congoleum Nairn Co., *City of Flint,* Dublin, 121 bls. rags; S. Shapiro & Sons, Inc., *City of Flint,* Manchester, 17 bls. new cuttings.

NORFOLK IMPORTS

WEEK ENDING OCTOBER 3, 1936

E. J. Keller Co. Inc., *Black Eagle,* ———, 43 bls. rags; N. Y. Trust Co., *Black Eagle,* Antwerp, 24 bls. bagging.

NEWPORT NEWS IMPORTS

WEEK ENDING OCTOBER 3, 1936

———, *Maria,* Trieste, 2,842 bls. wood pulp; Bulkley Dunton & Co., *Sandhamn,* ———, 4,612 bls. wood pulp.

NEW ORLEANS IMPORTS

WEEK ENDING OCTOBER 3, 1936

Pagel Horton & Co. Inc., *Uddeholm,* Sweden, 2,483 bls. wood pulp; Gottesman & Co. Inc., *Uddeholm,* Sweden, 3,000 bls. wood pulp.

LOS ANGELES IMPORTS

WEEK ENDING OCTOBER 3, 1936

———, *Amagisan Maru,* ———, 360 bls. rags; California Mill Supply Corp., *Norfolk Maru,* Yokohama, 270 bls. rags.

MONTREAL IMPORTS

WEEK ENDING OCTOBER 3, 1936

Pagel Horton & Co. Inc., *Herroy,* Sweden, 1,500 bls. wood pulp; Gottesman & Co. Inc., *Korsholm,* Sweden, 7,200 bls. wood pulp; Price & Pierce, Ltd., *Korsholm,* ———, 18,000 bls. unbleached kraft pulp.

New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, October 6, 1936.

Sentiment in the local paper market continues optimistic. Demand for the various standard grades of paper is expanding and the closing months of the year should be very active. Sales forces of the leading paper organizations are exceptionally busy at the present time. Prices are generally holding to formerly quoted levels.

The particular feature of the newsprint paper market last week was the report that the Donnacona Pulp and Paper Company has signed a contract with the Hearst newspaper syndicate by which the latter will take over Donnacona's enitre output of newsprint for 1937, consisting of about 25,000 tons, at the market price of $42.50 per ton.

Steadiness prevails in the fine paper market. Demand for book, cover, bond and ledger papers is improving. Prices remain unchanged. Tissues are going forward freely. The coarse paper market is sharing the general business improvement. Demand for all grades of paper board is better and prospects for the immediate future are bright.

Mechanical Pulp

The position of the ground wood pulp market is practically unchanged. Production at home and abroad is being maintained in sufficient capacity to take care of current requirements. Stocks at the pulp mills are not excessive and the statistical position of the industry continues sound. Prices are generally holding to schedule.

Chemical Pulp

Conditions in the chemical pulp market are little changed. Demand for bleached sulphite and kraft pulps is persistent and, with offerings limited, prices are firm. Bleachable grades of unbleached sulphite pulp are in excellent request and quotations on these grades are stronger. Bleached soda pulp is also displaying strength.

Old Rope and Bagging

The old rope market is showing signs of improvement. Demand for old manila rope is brisk and, with offerings scarce, prices are stronger. Small mixed rope is fairly active. No radical changes transpired in the bagging market. Both scrap and gunny bagging are moving into consumption in moderate volume. Roofing bagging is fairly steady.

Rags

While trading is rather irregular, the domestic rag market is exhibiting a fairly strong undertone. Offerings of new and old cotton rags are limited at present and quotations are inclined to be firmer. Demand for No. 1 white cotton cuttings from abroad is well sustained. The imported rag market is only moderately active and prices are nominal.

Waste Paper

The paper stock market is attracting more attention. Board mill demand for the lower grades of waste paper is expanding and quotations on No. 1 mixed paper and strictly folded news are firmer than of late. The higher grades of paper stock are steady. White envelope cuttings and hard and soft white shavings are fairly active.

Twine

Demand for the various varieties of twine is well up to average for the season and should continue very heavy during the next few months, at least. There are a good number of inquiries around for future delivery which should materialize into desirable orders. Prices are holding to formerly quoted levels, in most instances.

Gummed Products Makes Appointments

Roth F. Herrlinger, president, the Gummed Products Company, manufacturers of Trojan Box Tape, Gummed Sealing Tape, flat Gummed Papers and Sterling "Tread" Gummed Tape, announces the appointment of C. A. Simpson and Carl Van Deusen, who will have charge of sales in the Eastern territory with headquarters in New York City. The states covered include: New England, Metropolitan New York, Eastern Pennsylvania, New Jersey, Delaware, Maryland and Virginia.

Mr. Simpson has complete charge of Trojan Box Tape sales in the New England territory. He brings to the Gummed Products Company fifteen years of experience in production and sales which is bound to prove beneficial to Eastern box manufacturers.

Mr. Van Deusen has complete charge of Trojan Gummed Paper, Trojan Gummed Tape and Sterling "Tread" Gummed Tape sales to Paper Merchants in the Eastern territory. He started with the company in March, devoting his time exclusively to sealing tape sales. He also has a broad experience in sales work which gives him a splendid background for his particular responsibilities.

These appointments by the Gummed Products Company are in line with its policy of close cooperation to the fullest extent with its markets in the East where the products of the company are enjoying a huge demand.

In order to more satisfactorily meet the heavy demand for its products, the Gummed Products company recently invested more than $500,000 in enlarging its mill and increasing its production facilities. It is now one of the largest and most modernly equipped gumming mills in the country with its own vast research and experimental laboratory devoted entirely to product quality control and improvement.

New York TAPPI Group to Meet

The next meeting of the Northern New York Group of the Technical Association of the Pulp and Paper Industry will be held at the Woodruff Hotel, Watertown, N. Y., on November 7, 1936.

Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, October 7, 1936.

BLANC FIXE.—Conditions in the blanc fixe market are fairly satisfactory. Prices are holding to schedule, in most instances. The pulp is quoted at $42.50 to $45 per ton, in bulk; while the powder is selling at 3½ to 3¾ cents per pound, in barrels, at works.

BLEACHING POWDER.—The bleaching powder market is moderately active. Shipments against contract are moving in fairly good volume for the time of year. Prices are steady and unchanged. Bleaching powder is quoted at $2 to $2.25 per 100 pounds, in drums, at works.

CASEIN.—The casein market continues firm. Domestic standard ground is quoted at 17 and finely ground at 17½ cents; while French and Argentine standard ground are selling at 17 and finely ground at 17½ cents per pound, all in bags, car lot quantities.

CAUSTIC SODA.—Paper mill demand for caustic soda is fairly persistent. The contract movement is normal. Prices are steady. Solid caustic soda is quoted at $2.55 to $2.60; while the flake and ground are selling at $2.95 to $3 per 100 pounds, in drums, at works.

CHINA CLAY.—The position of the china clay market is practically unchanged. Prices are holding to schedule. Imported china clay is quoted at $12.50 to $21 per ton, ship side; while domestic paper making clay is selling at $6.50 to $12 per ton, at mine.

CHLORINE.—Sentiment in the chlorine market continues optimistic. The contract movement is well up to average. Prices are maintained at formerly quoted levels. Chlorine is selling at $2.15 to $2.55 per 100 pounds, in tank cars, at works.

ROSIN.—The rosin market is easier. Paper making gum rosin is quoted at $5.95 and wood rosin at $6.05 per 280 pounds, gross weight, in barrels, at Savannah. Seventy per cent rosin size is selling at $3.04 per 100 pounds, in tank cars, at works.

SALT CAKE.—Demand for salt cake is well sustained. Prices are generally holding to schedule. Salt cake is still quoted at $12 to $13; chrome salt cake at $11 to $12 per ton, at works; while imported salt cake is selling at $12 to $13 per ton, ship side.

SODA ASH.—The soda ash market is displaying strength. Contract shipments are moving freely. Prices are steady and unchanged. Quotations on soda ash, in car lots at works, per 100 pounds, are as follows: in bulk, $1.05; in bags, $1.20; and in barrels, $1.50.

STARCH.—No radical changes transpired in the starch market. The contract movement is normal for the season. Prices are steadier. Special paper making starch is quoted at $4 per 100 pounds, in bags; and at $4.27 per 100 pounds, in barrels, at works.

SULPHATE OF ALUMINA.—The sulphate of alumina market is exhibiting a strong undertone. Shipments against contract are moving in good volume. Commercial grades are quoted at $1.35 to $1.60; while iron free is selling at $2 to $2.25 per 100 pounds, in bags, at works.

SULPHUR.—The sulphur market is steady. Yearly contracts are quoted at $18 per ton, in bulk, on orders of 1,000 tons, or over, and $20 on smaller quantities. On spot and nearby car loads the quotation is $21 per ton. All quotations are in car lots, at works.

TALC.—Steadiness prevails in the talc market. The contract movement is normal. Prices are holding to schedule. Domestic talc is quoted at $16 to $18 per ton, at eastern mines; while imported talc is selling at $23 to $30 per ton, on dock.

Market Quotations

Paper

Rag Content Bond & Ledgers—Delivered Zone 1

	Bonds	Ledgers
100% Rag Ext. No. 1	.36	.37
100% Rag	.28	.29
75% Rag	.21	.22
65% Rag	.18	.19
50% Rag	.15	.16
25% Rag	.12½	.13½

Sulphite Bond & Ledgers—Delivered Zone 1

	Bonds		Ledgers
No. 1 Sulphite	7.50	@	8.50
No. 2 Sulphite	6.50	@	7.50
No. 3 Sulphite	6.00		7.00
No. 4 Sulphite	5.50		6.50
Book, B Grade, Cased			
S. & S. C.	5.85	@	6.60
S. & S. C. Litho.	6.10	@	6.85
M. F.	5.60	@	6.35
No. 4 Grade			
Coated and Enamel	6.80	@	7.65
Coated Litho	6.80	@	7.65
Tissues—Per Ream			
White No. 1	.82½	@	—
White No. 1 M. G.	.77½	@	—
White No. 1½	.62½	@	—
White No. 2	.60	@	—
Anti-Tarnish M. G.	.67½	@	—
Colored	.80	@	—
Kraft	.67½	@	—
Manila	.60	@	—
Unbleached Toilet	2.60	@	3.30
Bleached Toilet	3.94	@	5.26
Paper Towels—			
Unbleached	2.10	@	3.35
Bleached	3.30	@	3.70
Manila—			
No. 1 Jute	9.00	@	9.25
No. 2 Jute	7.75	@	8.50
No. 1 Wood	4.00	@	5.25
No. 2 Wood	3.50	@	4.00
Fibre Papers—			
No. 1 Fibre	4.25	@	5.50
No. 2 Fibre	4.00	@	4.75

(Delivered New York)

News, per ton—			
Roll, contract	41.00	@	—
Sheets	46.00	@	—
Kraft—			
No. 1 Northern	4.25	@	4.75
Standard	4.00	@	4.12½
Southern	3.87½	@	—
Glazed	4.37½	@	—
Striped	4.62½	@	—
Boards—per ton—			
News	30.00	@	32.50
Chip	32.50	@	35.00
Sgl. Mla. Ll. Chip	45.00	@	47.50
Jute Lined Chip	47.50	@	50.00
Kraft Liners	62.50	@	65.00
White Pat. Coated	57.50	@	60.00
Binders Boards	67.00	@	75.00

Mechanical Pulp

(On Dock, Atlantic Ports)

No. 1 Imported—		
Moist	24.00	@25.00
Dry	24.00	@25.00
(Delivered)		
No. 1 Domestic and Canadian	27.00	@28.00

Chemical Pulp

(On Dock, Atlantic, Gulf and West Coast Ports)

Bleached Sulphite (Domestic and Foreign)—			
Division 1	2.70	@	3.30
Division 2	2.65	@	2.75
Division 3	2.60	@	2.70
Prime Qualities—			
Class 1 All Prime Easy Bleaching	2.10	@	2.15
Other Than Easy Bleaching—			
Class 2 Higher than Standard	2.05	@	2.10
Class 3 Standard	2.00	@	2.05
Class 4. Lower than Standard	1.95	@	2.00

(On Dock, Atlantic Ports)

Kraft Bleached	3.00	@	3.25
Kraft Light & Strong	2.10	@	2.20
Kraft No. 1	1.85	@	2.10
Kraft No. 2	1.70	@	1.85
(F. o. b. Pulp Mill)			
Kraft Domestic	1.80	@	2.00
(Delivered)			
Soda Bleached	2.60	@	—

* Add 60 Cents per short ton, dock charges, for Albany; $2.00 for Lake Ports East and $3.00 for Lake Ports West of Mackinac Straits.

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1	7.75	@	8.00
Silesias No. 1	5.50	@	5.75
New Unbleached	8.25	@	8.50
New Soft Blacks	3.75	@	4.00
Blue Overall	6.75	@	7.00
Fancy	3.00	@	3.25
Washables	2.25	@	2.50
Mixed Khaki Cuttings	3.50	@	3.75
O. D. Khaki Cuttings	4.25	@	4.50

Old Rags

White, No. 1—			
Repacked	3.25	@	3.50
Miscellaneous	2.75	@	3.00
White, No. 2—			
Repacked	2.25	@	2.50
Miscellaneous	1.75	@	2.00
Thirds and Blues—			
Repacked	2.00	@	2.25
Miscellaneous	1.90	@	2.00
Roofing Rags—			
No. 1	1.75	@	1.80
No. 2	1.25	@	1.30
No. 3 (bagging)	1.15	@	1.20
No. 4	1.10	@	1.15
No. 5A	.80	@	.90

Foreign Rags

New Rags

New Dark Cuttings	2.25	@	2.50
New Mixed Cuttings	2.00	@	2.25
New Light Silesias	5.50	@	5.75
Light Flannelettes	5.50	@	5.75
New White Cuttings	7.00	@	7.50
New Light Oxfords	4.00	@	4.50
New Light Prints	3.00	@	3.25

Old Rags

No. 1 White Linens	7.50	@	8.00
No. 2 White Linens	6.50	@	7.00
No. 3 White Linens	4.50	@	5.00
No. 4 White Linens	2.25	@	2.50
No. 1 White Cotton	4.25	@	4.75
No. 2 White Cotton	3.25	@	3.75
No. 3 White Cotton	2.50	@	2.75
No. 4 White Cotton	1.90	@	2.15
Extra Light Prints	2.00	@	2.25
Ord. Light Prints	1.75	@	1.85
Med. Light Prints	1.55	@	1.65
Dutch Blue Cottons	2.25	@	2.50
French Blue Linens	3.50	@	4.00
German Blue Linens	2.50	@	2.75
German Blue Cottons	2.00	@	2.25
Checks and Blues	2.00	@	2.25
Linsey Garments	2.15	@	2.25
Dark Cottons	1.90	@	2.10
Old Shopperies	1.75	@	2.00
New Shopperies	1.75	@	2.00
French Blues	2.25	@	2.50

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—			
Foreign	2.10	@	2.15
Domestic	1.75	@	1.85
Wool Tares, light	1.50	@	1.75
Wool Tares, heavy	1.85	@	2.05
Bright Bagging	1.70	@	1.75
Manila Rope—			
Foreign	2.50	@	2.95
Domestic	2.75	@	3.00
Jute Strings	2.00	@	2.25
Sisal Strings	2.00	@	2.10
Mixed Strings	.80	@	1.00

Old Waste Papers

(F. o. b. New York)

Shavings—			
White Envelope Cuttings	2.55	@	2.65
Ordinary Hard White No. 1	2.25	@	2.35
Hard White No. 2	2.10	@	2.20
Soft White No. 1	1.95	@	2.05
Flat Stock—			
Stitchless	.65	@	.75
Over issue Mag	.65	@	.75
Solid Flat Book	.55	@	.60
Crumpled No. 1	.35	@	.40
Ledger Stock	.85	@	.90
New B. B. Chips	.30	@	.35
Manilas—			
New Env. Cut	1.75	@	1.85
New Cuttings	1.35	@	1.45
Old Kraft Machine—			
Compressed bales	1.15	@	1.30
News—			
No. 1 White News	1.15	@	1.25
Strictly Overissue	.50	@	.60
Strictly Folded	.40	@	.45
No. 1 Mixed Paper	.35	@	.40

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The Paper Trade Journal
15 West 47th St. New York

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF MARCH 3, 1933

Of PAPER TRADE JOURNAL, published weekly at East Stroudsburg, Pa., for October 1, 1936.

State of New York, } ss.
County of New York }

Before me, a Notary Public in and for the State and county aforesaid, personally appeared Geo. S. Macdonald, who, having been duly sworn according to law, deposes and says that he is the Publisher of the PAPER TRADE JOURNAL and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 411, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business manager are: Publisher, Geo. S. Macdonald, 15 West 47th st., New York, N. Y.; Editor, Henry J. Berger, 15 West 47th st., New York, N. Y.; Managing Editor, Henry J. Berger, 15 West 47th st., New York, N. Y.; Business Manager, Geo. S. Macdonald, 15 West 47th st., New York, N. Y.

2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given.) Lockwood Trade Journal Co., Inc., 15 West 47th st., New York, N. Y.; Stockholders: Geo. S. Macdonald, 15 West 47th st., New York, N. Y.; Arthur S. Zabriskie, 15 West 47th st., New York, N. Y.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.) None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company, but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

5. That the average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the twelve months preceding the date shown above is ——. (This information is required from daily publications only.)

GEO. S. MACDONALD.
(Signature of publisher.)

Sworn to and subscribed before me this 1st day of October, 1936.

BEATRICE TROMMER,
Notary Public, New York County.

(Seal.)

N. Y. Co. Clk's No. 80. Term expires March 30, 1938

Twines

(F. o. b. Mill)

(Soft Fibre)

Coarse Polished—		
India	.13¼ @	.15¾
Belg. White Hemp	.14¼ @	.17¾
India Compress	.13¾ @	.14¼
Fine Polished—		
Fine India	.21½ @	.23½
Special	.19½ @	.21½
Unpolished—		
Box	.12 @	.12½
Paper Makers	.09 @	.13½
Tube Rope	.10 @	.15½
Wall Paper	.11 @	.14½
Wrapping	.15½ @	.21
Special	.15 @	.15½
Soft Fiber Rope	.12½ @	.12¾

(Hard Fibre)

Bond	.12 @	.20½
Anchor	.11½ @	.13
Manila	.21 @	.28

CHICAGO

Paper

(F. o. b. Mill)

Rag Bond	.12 @	.40
Water Marked Sulphite Bond	.06¾ @	.11
Sulphite Bond	.05½ @	.07¾
Superfine Writing	.18 @	.24
No. 1 M. F. Book	.06½ @	.07¾
No. 2 M. F. Book	.05¼ @	.06¼
No. 1 S.&S.C. Book	.06¾ @	.07¾
No. 2 S.&S.C. Book	.05¾ @	.06½
Coated Book	.07 @	.12
Coated Label	.07 @	.08½
No. 1 Manila	.04¼ @	.05¾
No. 1 Fibre	.04¾ @	.05¾
No. 2 Manila	.04¼ @	.04¾
Butcher's Manila	.03¾ @	.03¾
No. 1 Kraft	4.75 @	5.00
Southern Kraft	3.88 @	4.25
No. 2 Kraft	3.88 @	4.25
Wood Tag Boards	.04¼ @	.06¼
Sulphite Screenings	.03 @	.03¾
Manila Tissue	.05¾ @	.07
White Tissue	.07 @	.09

(Delivered Central Territory)

News, per ton—		
Rolls, contract	42.00 @	—
Sheets, open	47.00 @	—
Boards, per ton—		
Plain Chip	46.50 @	—
Solid News	50.00 @	—
Manila Lined Chip	55.00 @	—
Patent Coated	65.00 @	—
Container Lined—		
85 Test, per 1000 sq. ft.		1.70
100 Test, per 1000 sq. ft.		1.85

Old Papers

(F. o. b. Chicago)

Shavings—		
No. 1 White Envelope Cuttings	1.70 @	2.00
No. 1 Hard White	1.40 @	1.65
No. 1 Soft White	1.25 @	1.50
Ledger & Writings	.60 @	.70
Solid Books	.50 @	.60
Blanks	1.00 @	1.05
Krafts	.80 @	.90
New Kraft Cuts	1.20 @	1.30
Manila Env. Cuts	1.25 @	1.30
Ex. No. 1 Manila	.90 @	1.00
Print Manila	.40 @	.50
Overissue News	.40 @	.45
Old Newspapers—		
No. 1 Folded News	.42½ @	.45
No. 1 Mixed Paper	.25 @	.30
Roofing Stocks—		
No. 1	30.00 @	—
No. 2	28.00 @	—

PHILADELPHIA

Paper

Rag Content Bond & Ledgers—
Delivered Zone 1

	Bonds	Ledgers
100% Rag Ext. No. 1	.36	.37
100% Rag	.28	.29
75% Rag	.21	.22
65% Rag	.18	.19
50% Rag	.15	.16
25% Rag	.12½	.13½

Sulphite Bond & Ledgers—
Delivered Zone 1

	Bonds	Ledgers
No. 1 Sulphite	7.75	8.75
No. 2 Sulphite	6.75	7.75
No. 3 Sulphite	6.00	7.00
No. 4 Sulphite	5.50	6.50

F.o.b. Mill

Book, M. F.	5.00 @	—
Book, S. S. & C.	5.25 @	—
Book, Coated	6.15 @	—
Coated Lithograph	6.15 @	—
No. 1 Jute Manila	10.50 @	—
Manila Sul., No. 1	6.75 @	—
Manila No. 2	4.25 @	—
No. 1 Kraft	6.00 @	—
Southern Kraft	5.00 @	—
News Print Rolls	40.00 @	—
Straw Board	40.00 @	45.00
News Board	40.00 @	—
Chip Board	37.50 @	—
Wood Pulp Board	70.00 @	85.00
Binder Boards—		
No. 1, per ton	75.00 @	80.00
No. 2, per ton	70.00 @	75.00
Carload lots	65.00 @	70.00
Tarred Felts—		
Regular	52.25 @	54.25
Slaters (per roll)	.84 @	.94

Domestic Rags (New)

(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—		
New White, No. 1	.08 @	.08½
New White, No. 2	.04½ @	.05
Light Silesias	.05½	—
Silesias, No. 1	.04½ @	.05
Black Silesias, soft	.03½ @	.04
New Unbleached	.06 @	—
Washable, No. 1	.02 @	.02½
Blue Overall	.07 @	.07½
Cottons—According to grades—		
Washable, No. 2	.02½ @	.04½
New Blue	.02 @	.02½
Fancy	.03 @	—
New Black Soft	.04 @	.04½
New Light Seconds	.03½ @	.04
New Dark Seconds	2.00 @	2.25
Khaki Cuttings—		
No. 1 O. D.	.04 @	.04½
No. 2 Mixed	.03½ @	.04
Corduroy	.02 @	.02¼
New Canvas	.04 @	.04½
New Black Mixed	.02 @	.02¼

Domestic Rags (Old)

White No. 1—		
Repacked	4.00 @	4.50
Miscellaneous	3.00 @	3.50
Thirds and Blues—		
Miscellaneous	2.00 @	2.25
Repacked	2.50 @	2.75
Black Stockings (Export)	4.50 @	5.00
Roofing Stock—		
Foreign No. 1	2.20 @	2.25
Domestic No. 1	1.50 @	1.60
Domestic No. 2	1.40 @	1.50
Roofing bagging	1.10 @	1.20

Bagging

(F. o. b. Phila.)

Gunny, No. 1—		
Foreign	2.00 @	—
Domestic	2.25 @	—
Manila Rope	2.75 @	—
Sisal Rope	2.25 @	2.35
Mixed Rope	1.00 @	1.10
Scrap Burlaps—		
No. 1	2.25 @	2.50
No. 2	1.00 @	1.10
Wool Tares, heavy	3.25 @	3.50
Mixed Strings	1.00 @	1.10
No. 1 New Light Burlap	3.00 @	3.50
New Burlap Cuttings	2.50 @	2.75

Old Papers

(F. o. b. Phila.)

Shavings—		
No. 1 Hard White	2.30 @	2.40
No. 2 Hard White	2.10 @	2.20
No. 1 Soft White	1.80 @	1.85
No. 2 Soft White	1.40 @	1.45
No. 1 Mixed	— @	.85
Solid Ledger Stock	1.50 @	1.60
Ledger Stock, white	1.15 @	1.20
Ledger Stock, colored	.85 @	.90
No. 1 Books, heavy	.65 @	.70
Manila Cuttings	1.80 @	1.90
Print Manila	.55 @	.60
Container Manila	.55 @	.60
Kraft Paper	1.10 @	1.20
No. 1 Mixed Paper	.45 @	.50
Straw Board Chip	.40 @	—
Binders Board Chip	.40 @	—
Corrugated Board	.60 @	.65
Overissue News	.60 @	—
Old Newspapers	.45 @	—

BOSTON

Paper

Rag Content Bond & Ledgers—
Delivered Zone 1

	Bonds	Ledgers
100% Rag Ext. No. 1	.36	.37
100% Rag	.28	.29
75% Rag	.21	.22
65% Rag	.18	.19
50% Rag	.15	.16
25% Rag	.12½	.13½

Sulphite Bond & Ledgers—
Delivered Zone 1

	Bonds	Ledgers
No. 1 Sulphite	7.50	8.50
No. 2 Sulphite	6.50	7.50
No. 3 Sulphite	6.00	7.00
No. 4 Sulphite	5.50	6.50

F.o.b. Mill

Book, Super	.06 @	.09
Book, M. F.	.05½ @	.08½
Book, Coated	.08½ @	.18
Coated Litho	.09 @	.12
Jute Manila No. 1	.11 @	.13
Manila, Sul. No. 1	.04¾ @	.06¼
Manila, Sul. No. 2	.03¾ @	.04½
No. 1 Kraft	.04¼ @	—
No. 2 Kraft	.04½ @	—

(Delivered New England points)

Southern Kraft	.04 @	—
News Print Rolls	39.50 @	—
Straw Board, rolls	.009 —	@35.00
Filled News Board	40.00 @	45.00
Chip Board	37.50 @	40.00
Single Manila Lined Chip	47.50 @	52.50
Single White, Patent Coated News Board (Bender)	57.50 @	67.50
Wood Pulp Board	70.00 @	75.00
Binder Boards (Standard Grade)	67.00 @	75.00

Old Papers

(F. o. b. Boston)

Shavings—		
No. 1 Hard White	2.00 @	2.10
No. 1 Soft White	1.75 @	1.85
No. 2 Mixed	.75 @	.80
Solid Ledger Books	1.50 @	1.75
Overissue Ledger Stock	1.15 @	1.30
Mixed Ledgers	.85 @	.90
No. 1 Books, heavy	.60 @	.70
No. 1 Books, light	.50 @	.60
Crumpled Stitchless Book Stock	.50 @	.60
Manila Env. Cuttings	1.50 @	1.60
No. 1 Old Manila	.60 @	.65
White Blank News	1.10 @	1.15
No. 1 Kraft	1.15 @	—
Mixed Papers	.35 @	—
Print Manila	.55 @	.60
Container Manilas	.27½ @	—
Old Newspapers	.40 @	.42½
Overissue News	.50 @	—
Box Board Chips	— @	.25
Corrugated Boxes	.47½ @	.50
Kraft corrugated boxes	.95 @	1.00
Screening Wrappers	.40 @	.45

Bagging

(F. o. b. Boston)

Manila Rope—		
Foreign	2.50 @	2.80
Domestic	2.75 @	—
Transmission Rope	1.25 @	1.35
Jute Rope	2.12½ @	2.25
Jute Carpet Threads	1.00 @	1.10
Gunny No. 1—		
Foreign	1.90 @	2.00
Domestic	1.75 @	1.80
Bleachery Burlap	4.25 @	4.50
Scrap Burlap—		
Foreign	1.90 @	2.00
Domestic	1.60 @	1.75
Scrap Sisal	2.00 @	2.10
Scrap Sisal for Shredding	2.10 @	2.35
Wool Tares, heavy	1.90 @	2.00
New Burlap Cuttings	2.00 @	2.25
Australian Wool Pouches	2.35 @	2.50
Heavy Baling Bagging	1.85 @	2.20
Paper Mill Bagging	1.65 @	1.70
Bagging No. 2	1.10 @	1.25

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—		
New Light Prints	.03½ @	.03¾
New White No. 1	.07¼ @	.07¾
New White No. 2	.04 @	.04½
Silesias No. 1	.06 @	.06¼
New Black Silesias	.03½ @	.04¼
Soft Unbleached	.07½ @	.08
Blue Cheviot	.06¼ @	.06¾
Fancy	.03 @	.03¼
Washable	.02 @	.0250
Cottons—According to grades—		
Blue Overalls	6.25 @	6.75
New Black, soft	— @	—
Khaki Cuttings	.03¾ @	.04
O. D. Khaki	.03¾ @	.04¼
Corduroy	.02¼ @	.03
New Canvas	— @	—
B.V.D. Cuttings	.07½ @	—

Domestic Rags (Old)

(F. o. b. Boston)

Canvas	.04½ @	—
White No. 1—		
Repacked	— @	2.75
Miscellaneous	2.50 @	2.75
White No. 2—		
Repacked	1.90 @	2.00
Miscellaneous	2.00 @	2.25
Twos and Blues	1.75 @	2.00
Thirds and Blues—		
Repacked	1.37½ @	1.75
Miscellaneous	1.25 @	1.62½
Black Stockings	3.90 @	4.00
Roofing Stock—		
No. 1	1.45 @	1.50
No. 2	1.25 @	1.35
No. 3	1.15 @	1.25

Foreign Rags

(F. o. b. Boston)

Dark Cottons	1.70 @	2.00
New White Shirt Cuttings	6.50 @	6.75
Dutch Blues	2.25 @	2.50
New Checks & Blues	2.50 @	3.00
Old Fustians	1.75 @	1.90
Old Linsey Garments	2.12½ @	2.37½
New Silesias	5.00 @	5.75

TORONTO

Paper

(F. o. b. Cars Toronto)

Bond—Delivered—		
No. 5 White	.10¾ @	—
No. 6 White	.10 @	—
No. 5 Tints	.11¾ @	—
No. 6 Tints	.10½ @	—
No. 5 Golden Rod	.12¾ @	—
No. 6 Golden Rod	.12 @	—
Ledgers—		
Ledgers, No. 1	.34½ @	—
Ledgers, No. 2	.25½ @	—
Writing	.09 @	.09½
Book—		
No. 1 M. F.	6.50 @	6.75
No. 2 M. F.	6.25 @	6.50
No. 3 M. F.	5.00 @	5.35
No. 1 S. C.	7.00 @	7.50
No. 2 S. C.	6.50 @	7.00
No. 3 S. C.	5.50 @	6.00
No. 1 Coated and Litho	12.00 @	—
No. 2 Coated and Litho	10.50 @	—
No. 3 Coated and Litho	9.50 @	—
Coated tinted	13.00 @	—
Wrapping—delivered—		
Rag Brown	4.75 @	—
White Wrap	3.50 @	—
"B" Manila	4.80 @	—
No. 1 Manila	5.40 @	—
Fiber	5.40 @	—
Kraft, M. F.	5.90 @	—
Kraft, No. 2	5.40 @	—
News, per ton—		
Rolls (contract)	Nominal	
Sheets	Nominal	

Pulp

Ground wood	27.00 @	—
Unbleached Sulphite	42.00 @	—
Book (Class 1)	58.00 @	—
Writing (Class 2)	59.00 @	—
Select (Class 3)	60.00 @	—

Old Waste Paper

(In carload lots, f. o. b. Toronto)

Shavings—		
White Env. Cut	2.00 @	2.25
Soft White	1.60 @	1.90
White Blk. News	1.25 @	1.40
Book and Ledger—		
Flat Magazine and Book Stock (old)	.80 @	.90
Light and Crumpled Book Stock	.70 @	.80
Ledgers and Writings	.90 @	1.00
Manilas—		
New Manila Cut	1.25 @	1.40
Printed Manilas	.50 @	—
Kraft	1.00 @	1.60
News and Scrap—		
Strictly Overissue	.55 @	—
Strictly Folded	.50 @	—
No. 1 Mixed Paper	.40 @	—

Domestic Rags

(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.07½ @	.07¾
Fancy Shirt Cuttings	.02¾ @	.03

PAPER TRADE JOURNAL

ESTABLISHED 1872

SIXTY-FIFTH YEAR

THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY AND THE PIONEER PUBLICATION IN ITS FIELD

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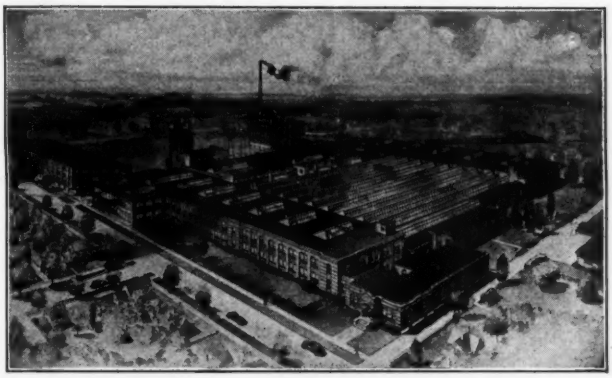

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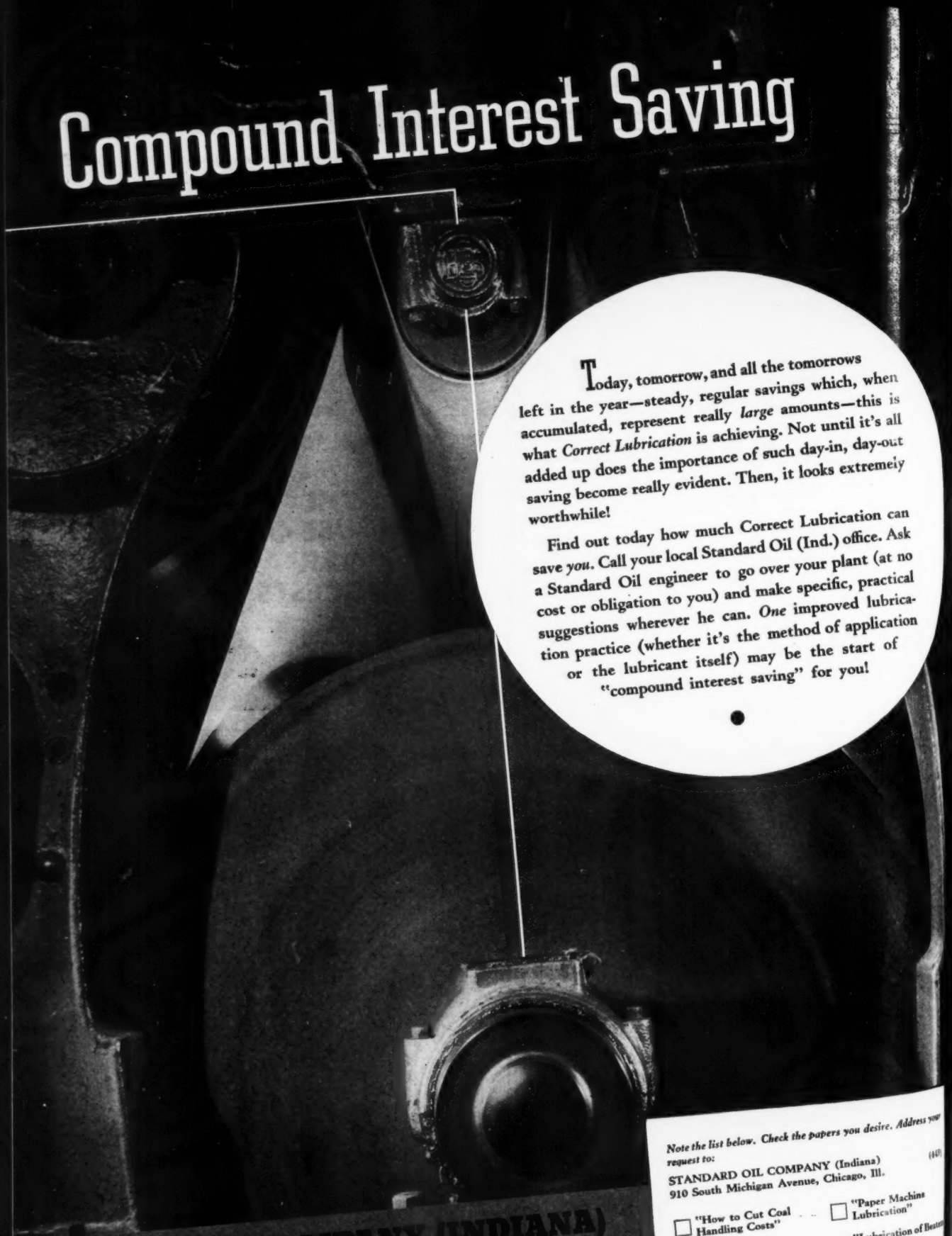

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